

Municipal Journal

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No. 11



FIRST GROUTING ON A NEW YORK STATE HIGHWAY.

BRICK PAVEMENTS FOR COUNTRY ROADS*

One Hundred Miles Laid by New York State in Vicinity of Buffalo.—Standard Sections of State Highway Commission.—Use of Wire Cut Lug Bricks.—Combined Brick and Earth Roads.

The use of brick for surfacing country roads is rapidly gaining favor with highway engineers and the general public.

In 1909, the New York State Highway Commission decided to use a more permanent form of construction than macadam for the main highways leading into the larger cities, as many of these macadam roads were in bad condition, due to heavy traffic and lack of systematic repairs.

Experience has shown that a macadam roadway under heavy traffic, either wagon or automobile, is not economical, mainly on account of the high cost of maintenance. The New York State Highway Commission, after extensive investigation, decided to use brick construction on their main highways; and, as a result, in 1910 about twenty miles of brick highways were constructed in the vicinity of the city of Buffalo. These

roads proved so satisfactory to the traveling public as well as to the Maintenance Department (the cost of maintenance being so low), that the mileage of brick roads in the vicinity of Buffalo at the present time is about one hundred miles, and this mileage will be greatly increased during the year 1913 if the present plans of the Commission are carried out.

These brick highways connect the city of Buffalo and Fort Niagara (at the mouth of the Niagara River) by way of the city of Niagara Falls, and reach out, with Buffalo as a center, to all points of the compass. And I feel confident that it will not be long until every important highway leading into Buffalo will be of brick construction. This is also true of many of the larger cities of New York state; and the villages are now adopting brick construction under state aid.

The process of manufacturing brick for paving purposes has become more scientific as the demand for brick has increased and the methods of construction improved. Streets built twenty to twenty-five years ago

*Presented at the Cleveland Meeting of Section D of the American Association for the Advancement of Science by William C. Perkins, Resident Engineer, Department of Highways, State of New York, Niagara Falls, N. Y.

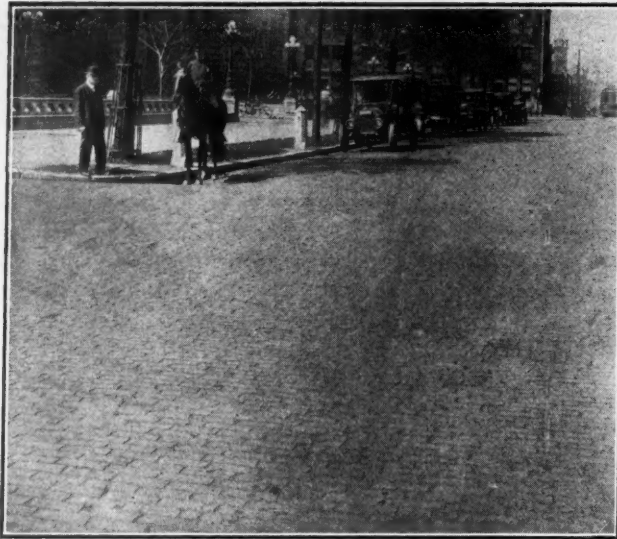


FIG. 2. PLAIN WIRE-CUT BRICK PAVEMENT 19 YEARS OLD. FRANKLIN ST., BUFFALO, N. Y.

were paved with wire-cut bricks of the same size as building brick. Later, repressed brick of the small size were used. When the constructing engineer asked for a projection on the brick which would separate each course so as to allow the filler to enter and bind the bricks, the manufacturers placed their trade mark, in the form of raised letters, on the side of the brick. Later, more pronounced lugs were demanded; these raised letters or lugs require a re-forming of the brick in stamping machines (erroneously called a repressing machine) and as a consequence the so-called repressed brick with lugs drove the old wire-cut out of the market. The size of the brick was also increased to that of the present block.

Highway engineers still demand a block with lugs, and in 1910 a wire-cut-lug block (made under the Dunn patents) was placed on the market for their consideration. During the same year, an experimental section, using these wire-cut-lug blocks, was laid on the main highway between Buffalo and Rochester, about one mile from Buffalo. This section proved so satisfactory that since that date a large percentage of the paving blocks used on the roads in Western New York have been wire-cut-lug blocks.

The records show that during 1912 nearly twenty-five million wire-cut-lug blocks were used on the highways of Western New York, although the specifications of the State Highway Department do not specify any style of block, merely requiring them to have lugs.

The best blocks in the world will make a bad pavement if the pavement is not properly designed and constructed. The brick highways in New York State are built according to plans and specifications of the State Highway Department, with strict inspection as to materials and workmanship.

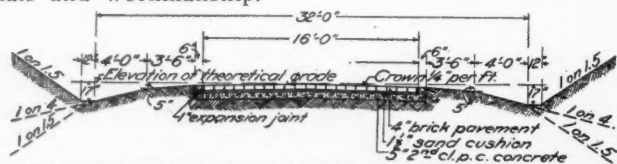


FIG. 3. STANDARD SECTION, BRICK HIGHWAY.

Fig. 3 shows the New York State standard section for a brick country road, which calls for 16 feet of brick surfacing; 1½-inch sand bed (this will be increased to 2 inches in 1913), and a foundation 5 inches thick of concrete mixed 1 to 2½ to 5.

The brick surfacing is confined by a concrete edging

6 inches wide flush with the pavement and separated from the pavement by a well-defined expansion joint ⅞ of an inch to 1 inch wide.

For surfacing wider than 16 feet, these longitudinal expansion joints are increased proportionally to the width of pavement. No transverse expansion joints are used. In 1910, transverse expansion joints placed 50 feet apart were used with disastrous results, the blocks having become loose and crushing on each side of the joint. The shoulders or wings on each side of the edging are of earth, 7 ft. 6 ins. wide, making the width of the roadway 32 feet between ditches. Normal ditches are 1 foot wide and 17 inches below the center of the road or theoretical grade; back slopes of ditches 1 on 1½; if necessary for proper drainage to deepen the ditches, or on embankment, the slopes are made 1 on 4, or 1 on 1½; but if the steeper slope is used, guard rail is necessary. The crown of the brick section is ¼ of an inch per foot.

Fig. 4 shows a special section combining a brick and earthen road used on the highway between Niagara Falls and Buffalo. This is very similar to the section used on the roads around Cleveland. This section has 16 feet of brick surfacing, with necessary edging and wing on one side of highway, and a 12-foot to 16-foot

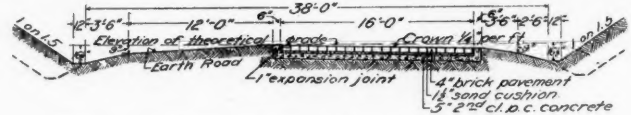


FIG. 4. BRICK WITH EARTH ROAD AT SIDE.

earthen road on the other side. This highway has just been constructed, having been opened for traffic on Christmas Day, and is 17 miles in length between the city lines. Fifteen miles of this highway is laid with wire-cut-lug blocks, the other two miles having been built in 1911 of repressed block. The traffic, especially automobile, will be very heavy. No traffic census has been taken, but on a Sunday afternoon (two weeks before the road was opened), at a time when it was necessary to make several bad detours, 256 automobiles passed a specific point in one hour.

In the preparation of plans for a brick highway on New York State work, the designing engineer carefully examines the surveyed plan, making a new location of the center if, in his judgment, it will improve the alignment; avoids all sharp turns, taking new rights of way if necessary. Easy grades are designed for the main



FIG. 5. BUFFALO-ORCHARD PARK HIGHWAY.

highways, which often necessitates the cutting down of hills and the filling in of hollows. The surface drainage is carefully examined, and concrete culverts used for the larger waterways and cast iron pipe for the smaller.

(To be continued)

MUNICIPAL OUT-OF-DOOR BATHS.

Those Under Public Control in Ten Cities.—Seasons in Use, Capacities, Separating Sexes and Colors.—Cost and Receipts.

From data compiled by A. LINN BOSTWICK, Municipal Reference Library, St. Louis, Mo.

An investigation has recently been made by the Municipal Reference Library, St. Louis, Mo. (a branch of the St. Louis Public Library) on the subject of municipal out-of-door bathing facilities, as differentiated from regular indoor public baths. In the investigation, the following inquiries were made: What outdoor bathing facilities are under public control? During what season are they open? How many persons do they accommodate? What regulations are made as to separating the sexes, children and adults, colored and whites? Length of time in water? Charges for bathing suits and towels? Dressing rooms? By what municipal department are these public bathing facilities controlled? What is the annual cost and receipts?

Answers were received from ten cities: Buffalo, Chicago, Cleveland, Detroit, Milwaukee, New York, Philadelphia, San Francisco, Seattle, St. Paul.

San Francisco has no outdoor bathing facilities, as the bathing is not considered safe along the bay.

Buffalo has one bathing beach on Lake Erie under public control. It is open from June first to September fifteenth and accommodates as many persons as can use 25 or 30 compartments in a row facing the water. There is no segregation, as the bath is not used by women, being unsuitable. Boys form the majority of the bathers. There is no limit as to how long a bather may remain in the water. The bathers bring their own suits and towels or rent them from the keeper at a nominal sum, which does not go to the city. The dressing rooms are wooden compartments. The control is vested in the Department of Health and the cost is from \$350 to \$450 per year. The beach bath spoken of is said by the Buffalo correspondent to be of little consequence, and no attention is paid to it except to keep it in good sanitary condition.

In Chicago there are two beaches on the lake front under control of the city Special Park Commission, one beach on the lake front under the Lincoln Park Board, seven or eight concrete open-air pools under the South Park Board, three concrete open-air pools under control of the West Park Board and one concrete open-air pool under the control of the Lincoln Park Board. They are open to the public from the early part of June to September 15 or October 1. The beaches accommodate from 2,000 to 3,500 a day and the pools 200 per hour with 10 hours per day. Children and adults are not separated, nor colored from white. There is sex segregation on the city beaches, none on the park beaches and the pools are open two days in the week to women and five to the men. One hour is allowed for dressing and bath at the pools and there is no limit at the beaches. Bathing suits and towels are free. At the pools there are individual booths for dressing and there is a central checking room at the beaches. The two city beaches cost about \$4,000 for a season.

Detroit has a bath house costing \$71,500 on Belle Isle Park in the Detroit River, under public control, which

is open from the latter part of May to the middle of September. It accommodates about 2,500 persons at a time and the daily attendance sometimes runs as high as 7,000. There is a department for men and one for women. There is no regulation as to the length of time in the water. Suits and towels are furnished free and rooms cost 10c., lockers 5c. In addition, there is a free department. It is under the control of the Parks and Boulevards Department. The cost last year was \$10,187.71, and the receipts \$11,710.50. It is stated that there is no idea of making money from the bath house, but to run it at cost for the public benefit.

Milwaukee has two bathing beaches at Lake Shore and one at the river which are open from June 1 to October 1. As many as 4,000 persons per day have used each of the baths. There is no segregation except as to apartments for dressing, which are separate for men and women. The superintendents in charge own and rent the bathing suits, receiving small salaries, but next season their salaries will be raised and the city will own and rent the suits. Two of the beaches are controlled by the Department of Public Works and one by the Park Board. The annual cost is given as \$2,655.76.

Outdoor bathing facilities in New York consist of 11 free floating baths along the river fronts in the various boroughs. The Borough of Brooklyn has a seaside bath at Coney Island. All these are open from June to October. The total attendance for 1911 was 818,721. There are separate days for men and women at the floating baths. At Coney Island there are separate dressing rooms and floors for men and women. No color segregation. When there are people waiting, the length of time in the water is limited to 20 or 30 minutes. Bathing suits and towels are not provided. There is no charge for dressing rooms at the floating baths. Ten cents is charged at Coney Island. The baths are under the jurisdiction of the presidents of the boroughs, each through his Commissioner of Public Works. The cost for 1911 was \$42,334.17.

Seattle has a salt water bathing beach and bath house operated under the public control. It is open during June, July and August. A maximum attendance of 5,000 per day has been recorded. There is no color problem and children and adults are not separated. Men and women have opposite ends of the building. There is no limit to the length of time in the water. Bathing suits and towels for adults cost 10c., but are free to children. There is no extra charge for dressing rooms. The Board of Park Commissioners is in control. The cost for 1913 was \$5,639.53 and the receipts were \$2,352.89. The number of bathers was 50,522.

St. Paul has a bathing place on an island in the Mississippi river, which is also washed by the Minnesota river. The island is of some thirty acres and the city has spent \$100,000 in beautifying it. The bath is open from the first of June to the first of September. About 480 persons are accommodated at one time. There is a men's bathing place, a women's place and one for families, separated one from the other by an imaginary line. There is no color segregation. Each patron has to pay 5c. for towels, soap and a bathing suit, the suit being sterilized after each use. The length of time in the water is unlimited. There is a small locker room for each bather. The bath is under the control of the Commissioner of Health. The city allows a sum of \$12,000 for the maintenance of the island-baths and music. Ice cream, sandwiches, etc., are sold which bring in a profit of from \$1,200 to \$2,000, so that the cost of maintaining the island is \$10,000 annually. This money is said to be expended on flowers, tennis courts, dancing pavilions, etc., and the baths are self-supporting.

Cleveland owns two bathing beaches. One of these is now closed, owing to the partial wrecking of the building there by a storm. The other beach has no printed report dealing with it. The Cleveland correspondent advises that so far but little attention has been paid to this matter, but that material progress will be made in the future.

In Philadelphia there are two open air swimming pools under the control of the Board of Recreation. They are open from about June 20 to September 20. Dressing rooms are provided, apparently without charge, and bathing suits and towels are free. Cost and receipt figures are not yet available.

JANESVILLE MUNICIPAL QUARRY.

By EARLE S. HOLMAN.

Janesville, Wisconsin, operates a municipal quarry and stone crushing plant, and according to the report of that utility for the year just ended, the net cost to the city of crushed stone for that period was eighty-nine and one-half cents per cubic yard; twenty-six cents less than stone shipped by rail from Waukesha, Wisconsin, the nearest available private source of supply, and three and one-half cents less than the cost of municipal crushed stone during the preceding year.

This creditable showing was made in spite of exceptionally expensive repairs and replacements made necessary by a break-down of the crusher, and in the face of a twenty-five per cent. advance in the cost of labor, by far the largest item of expense in the operation of the quarry. Out of the total cost of operation for the year 1912—\$5,475.17—the sum of \$4,119.97 was spent for labor, or \$30.75 per day. The total number of cubic yards of stone crushed during the year was 6,117.5. This was used in the construction of macadam pavement, for repairs to old macadam pavement, and in preparing foundation for brick pavement.

Improvements in the equipment and management of the crusher plant that will eliminate a large amount of manual labor and effect economies in its operation as well as increase its efficiency are now in contemplation. It is proposed to move the crusher plant closer to the supply of stone, thereby reducing the length of haul, and to erect storage bins of large capacity on the ledge. These would be filled by a mechanical conveyer and feed the dump wagons by gravity. The provision of larger bins will eliminate annoying delays in the supplying of stone, such as have been experienced when the city had a large amount of street improvements made simultaneously, and permit a more continuous operation of the

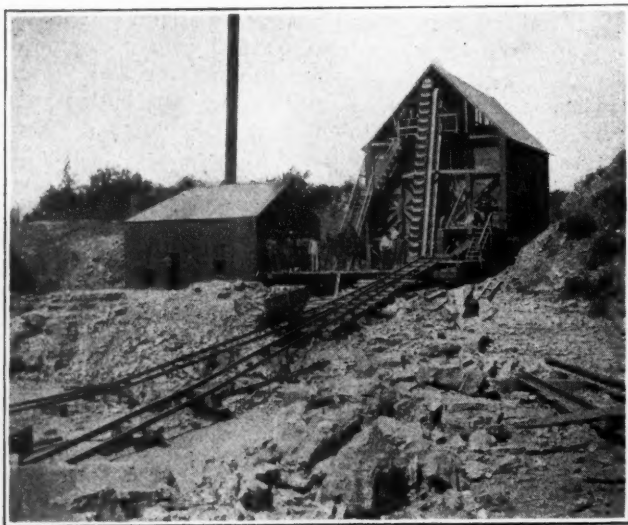
crusher. Ten teams working continuously are able to empty the existing storage bins in a very short time.

The mechanical equipment of the Janesville municipal quarry and stone crusher plant consists of an Austin stone crusher with a capacity of 300 cubic yards per day, a Sullivan steam rock drill capable of drilling ten feet in less than forty minutes, a fifty horse-power steam engine and boiler, a chain bucket conveyor, a tramway with two dump carts having a capacity of over a cubic yard each, and a horse dump cart. The cart, which was added to the equipment during the last year, has proved to be a valuable addition as it can collect stone from points in the quarry where the tramway track can not be laid. The crusher was the fifth made by the Austin-Western Company and has given excellent service.

A provision in the city charter, dating from the time when municipal trading was regarded as an intolerable invasion of private business, makes it impossible to operate the municipal quarry at its highest efficiency. This provision prohibits the sale of stone by the city to others than the contractors in its employ. In consequence the plant can not ordinarily be run to its full capacity and the overhead charges per cubic yard of stone are unnecessarily high.

The detailed report of this quarry and crusher for the year 1912 is as follows:

Labor	\$4,119.97
Dynamite, fuse, power, etc.	316.49
Repairs to tools	72.77
Telephone	26.55
New equipment	85.00
Insurance	30.00
Repairs to plant due to breakdown	272.21
Repairs to machinery	34.61
Rent of premises	300.00
Coal	458.42
Incidental expenses	222.21
Total	\$5,938.23
Credit—	
One year's insurance premium paid in 1912	\$ 15.00
Items paid in 1912 to be charged 1911	58.53
Repairs to plant due to breakdown	272.21
Inventory of materials on hand Jan. 1, 1913	81.32
By 80 per cent cost new equipment (dump cart, life estimated 5 years.)	36.00
Depreciation (covered by repairs)	000.00
Total	\$463.06
Net cost of operation	\$5,475.17



MUNICIPAL QUARRY AND CRUSHER, JANESVILLE.

MUNICIPAL CHARTER FEATURES.

Mayor W. A. Magee of Pittsburgh, in an effort to remedy what he considers some undesirable features of Pittsburgh's charter, and to bring it into line with more modern ideas, has arranged to send forty-three bills to the state legislature and ask for their passage. Among the provisions contained in these bills are the following:

Assessment of real estate of public service corporations for local taxation.

Permitting municipal ownership of surface street railways and of subways by either cities or counties.

Acquirement of private water companies by municipalities.

Authorizing cities to create a bureau of public utilities.

Assessing property for special benefits in construction of rapid transit railways.

Compelling street railway companies to repave and

repair their part of the streets when, in the judgment of the municipality, this should be necessary.

Repealing the exemption of churches, charitable institutions, etc., from local taxation.

Making the fiscal year coincide with the calendar year.

Assessing public benefits in sewer improvement cases for damages caused to private property taken or used.

Permitting taxation on motor vehicles for local purposes.

Uniform accounting for municipalities and all other public jurisdictions, including benevolent and charitable institutions enjoying public aid.

Requiring recital of the true selling price of real estate in deeds, for the benefit of assessors.

CINCINNATI SEWERAGE PLANS.

In April, 1912, by act of Council, the director of public service and the city engineer were authorized to proceed with the work preliminary to the improvement of the sewerage system of the city of Cincinnati, O., and the construction of a sewage treatment plant.

H. S. Mors, who had been an employe of the Louisville Sewerage Commission during the investigation and building of its \$4,000,000 sewerage system, was secured and given the title of acting engineer. Hugh Mitchell, of the United States Coast and Geodetic Survey, was given the task of making the topographical map of the city. E. F. Layman, of Cincinnati, was given charge of the underground surveys and field work. For the underground sewer drafting O. E. Carr, a supervising draughtsman of the United States Geodetic Survey, was secured. The new and relief sewer work was given to F. J. Von Hook, who had been an employe of the Louisville Sewerage Commission.

For the intercepting sewers and creek improvement, J. Minor, of Boston, was secured. For the investigation of sewage and its treatment, Harrison P. Eddy, of Boston, was secured. Mr. Eddy was likewise engaged as consulting engineer. J. E. Roof, an instructor in sanitary engineering at the University of Cincinnati, was given entire charge of the records.

Securing offices in the Odd Fellows' Temple, the above named men headed the different divisions of work, together with a force of some eighty assistants. To date the topographical map, comprising thirty square miles of the city's territory, has been completed, leaving seventy more to be tabulated. The underground survey has located and surveyed 150 miles of sewers, leaving probably 320 more to be surveyed. The investigations of Duck creek, the Ohio river and Mill creek have been practically completed. The industrial wastes of 345 different plants along Duck creek and Mill creek have been examined. Plans are being prepared for intercepting sewers along Mill and Duck creeks, with a disposal plant near the mouth of each. These and the intercepting sewer along the river will prevent any sewage from polluting that stream.

A conservative estimate places the time for building this system at twelve to fifteen years, at an expenditure of \$12,000,000 to \$15,000,000. The investigation will consume two years' time, at an expenditure of \$125,000.

A committee of the Federated Improvement Association of Hamilton County has recommended that the management of this work be vested in a non-partisan Sewerage Commission, to be composed of three or five men, who are to give their full time to the work, receive compensation for their services and be bona fide voters of Hamilton county. The object is to free the commission entirely from partisan strife and political change, with their objectionable effects upon the work.

SEATTLE WASTE DESTRUCTION.

Auto Truck for Removal Very Economical.—Single Can Collection and Destruction by Fire Adopted for Sanitary Reasons.

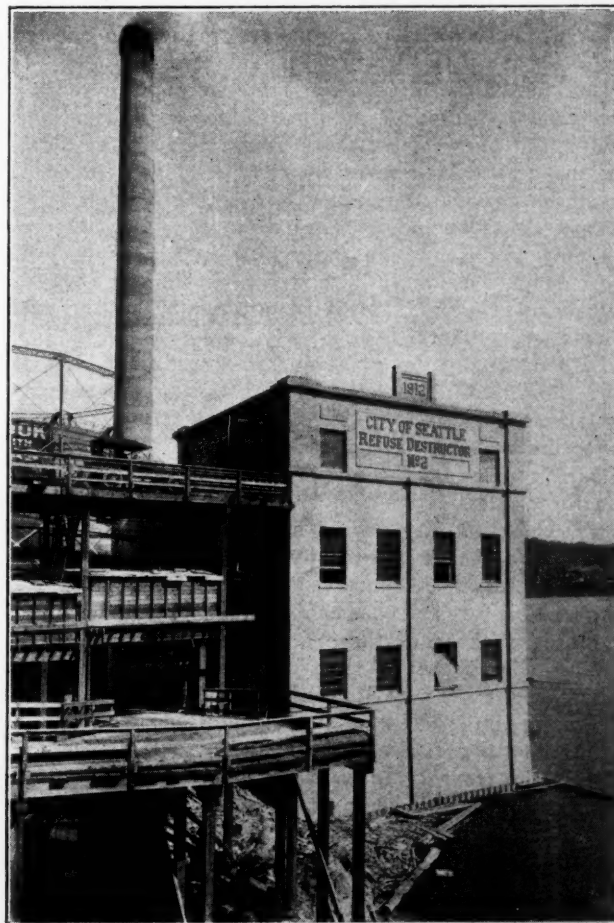
By C. E. CRICHTON, M. D., Commissioner of Health, Seattle, Wash.

The term waste as used in the city of Seattle includes everything on earth that is wasted, deposited or thrown away as being of no further value to the person or persons producing the same.

The city of Seattle, after an exhaustive investigation made, has seen fit to divide this subject into three headings; 1st, Collection; 2d, Removal; and 3d, Destruction. The Commissioner of Health of this city spent one year in visiting the principal foreign nations, the different cities of Canada and the United States and made an exhaustive study of the methods of collection and disposal of waste material.

He believes that by far the most dangerous substances which should be collected and destroyed by the ordinary American city, are those which as a rule receive the least attention. Most cities attempt to make a regular collection of what is generally known as garbage, decaying vegetable and animal tissues. Many American cities collect only at convenient times, and some only once or twice a year, other wastes, which in Seattle are considered the most dangerous. We refer to old mattresses, sheets, soiled bedding, wall paper, carpets, rags and handkerchiefs which have been soiled by direct contact with the evacuations and secretions of those sick with typhoid fever or other communicable diseases, more particularly tuberculosis.

In visiting 28 of the leading cities last summer we found some of those classed as progressive and modern,



SEATTLE REFUSE DESTRUCTOR NO. 2.

collecting this most dangerous waste only twice a year. It can be seen at a glance that, while table refuse or true garbage may become annoying to the special senses, the material is as harmless as it was before it passed through the kitchen. It is of course a feeding ground for flies and rats and to a certain extent furnishes a breeding place for the former.

We adopted the single can collection, into which every known substance is thrown and same collected regularly, because by so doing we cause an immediate destruction of the dangerous wastes and because it gives a mixture of ashes and other wastes with true garbage. It has been found by actual experience to limit the smell from the garbage can and the ashes, being a good absorbent, keep the insides of the cans comparatively dry. This step also enhanced the beauty of the city, since rubbish and refuse are never in evidence for more than a week's time. First of all let us say that the collection and destruction of garbage was considered as a sanitary measure, and that the cost of collection, removal and disposal was subordinated to that of sanitation. After we had decided upon the most sanitary plan, we then sought to procure the most economical method of collection, removal and destruction.

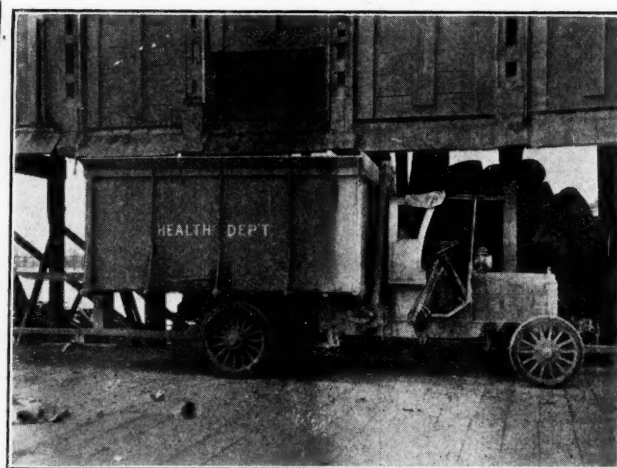
We have given the matter of removal separate treatment because this city introduced the method of removing its waste by auto truck two years ago and today is removing nearly 30 per cent, of its waste in this manner. It is believed that within sixty days more than 50 per cent will be removed by the auto truck. The removal of a city's waste is much more important than is conceded by most city officials. In removing the same by auto truck the material is taken through the streets of the city in about one-fourth or one-fifth of the time consumed by horse-drawn vehicles. Seattle is a city of hills and it is therefore safe to say that this material is removed as a matter of fact in one-fifth of the time consumed by horse-drawn vehicles. Six tons are removed in one truck bed built for this purpose. It is more easily covered by tarpaulin than would be the same tonnage in three vehicles. It is dumped once instead of three times, thus saving the blowing about and dissemination of disease-bearing germs. Not as many garbage-laden vehicles pass through a given community nor are they repugnant to the people as are horse-drawn vehicles. The collections are more regular because our hillsides are slippery during certain seasons and we were occasionally delayed a day or so at a time, as the case might be, by the use of horses.

In considering the great question of disposal, the one idea dominating at all times was that purification and destruction by fire was far and away superior to any other method. As a consequence we early adopted the Meldrum Brothers furnace of Liverpool, England, which is a forced draft, high temperature furnace and did what every American city should do, provided it adopts such a furnace, and that was to buy the right to the patents to build these plants, as many as desired within our corporate limits. This foresight has enabled the city to have in operation today three of these destructors, capable of consuming slightly more than 200 tons of mixed waste daily. Right here let it be thoroughly understood that not one pound of fuel is used in our destructor other than the waste itself—no coal, no wood, no oil. We have in the treasury today funds for the building of two more units. A unit has a guaranteed capacity of 65 tons of garbage daily. The Heenan & Froude incinerator now operating in Milwaukee is a type of furnace very similar to the one used here. Such furnaces turn out a clinker, or more properly speaking a slag, which we run through regular rock crushers and which is used for practically the same purpose as is crushed rock. We find a steady

market for this material for use in paving and sidewalk-ing and especially for floors in fireproof structures. We sell at the bunker, receiving 75 cents per cubic yard. We also grind the clinker still finer when it is used for many purposes like the manufacture of stationary wash trays etc.

The wagon which Seattle has adopted for general waste collection is the old type of European rear dump with large hind wheels and small front wheels which allows for turning within the length of the wagon. The rear wheels being high gives us ample opportunity for dumping large bulky material without annoyance. In one single can collection are boxes, barrels, shrubs, limbs of trees and other matter and as a consequence there must be considerable clearance from the wagon-bed to the ground or there will be difficulty in dumping. Where we are dumping into the bunkers this is not quite so important, although it has its advantages.

The can which we allow to be installed must not contain more than 35 gallons and is about 18x30 inches in size. However, for waste-paper we allow a larger can. Cans must be placed in suitable and accessible locations



WASTE WAGON BEING LOADED.

where they can be conveniently handled and loaded, since the time consumed in loading a ton of waste when taken from cans convenient and accessible as against cans inconveniently located amounts to practically 27 per cent.

We have not been operating with the auto trucks long enough to know exactly what the saving is amounting to over the horse drawn collection. It is our opinion at this time, however, that we are collecting with the auto truck our waste at a saving of not less than 45 cents on the dollar. We have attempted to lessen the price of the haul by installing at different places in the city small bunkers arranged in cells, each cell having a capacity of about six tons. These are filled by the horse-drawn vehicles. This material is taken from the bunkers by the auto-trucks to the incinerators and also at the present time to a large open dump. Five of these auto trucks are being used by the city in this work. They are the rear dump with bed 11 feet long and 6½ feet wide. By the use of these trucks we save the long team haul, the most important money saving feature of our entire scheme.

The two new furnaces we have installed have each an auxiliary boiler. These were placed with the idea of allowing the sale of steam. We develop 225 h.p. at each plant but on account of the drawing of our fires about once in four hours, we find it necessary, in order to guarantee the sale of steam, to install the auxiliary boiler, its furnace to be fed with the same material, i. e. the city's waste.

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MARCH 13, 1913.

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Taste in Water from Hypochlorite.

The local papers and citizens in Trenton, N. J., were very much agitated during the month of February by a disagreeable and even offensive taste and odor in the drinking water. In response to a request for information on the subject, A. C. Gregory, engineer of sewers and water for the city, under date of February 26, wrote us as follows: "About two weeks ago the water began to taste and smell in a manner which made the drinking of it a matter of stern and purposeful determination, based upon a conviction that the water contained nothing deleterious to the human system. This disagreeable condition lasted for a week or ten days. It was occasioned, according to the chemists of the city and the State Board of Health, by the low temperature of the water when treated. You will perhaps remember that about that time we had some severely cold weather. Apparently the chemical reaction ordinarily looked for by the addition of hypochlorite to the water was incomplete, or at least greatly retarded, during the time of low temperature. The result was that hypochlorous acid was left, giving it a disagreeable taste and smell." The plant by which the hypochlorite is being

applied to the water was described in our issue of April 18, 1912.

This sudden appearance of odor and taste in the water of course gave rise to considerable agitation, which was greatly increased by several of the physicians of the town who stated or at least suggested that all kinds of ailments among the citizens were resulting from this condition. Some said that calcium salts in the water would cause hardening of the arteries, kidney diseases, rheumatism and divers other disorders. It was also reported that the hypochlorite caused inflammation of the skin of those bathing in the water; and one physician went so far as to claim that the acid in the water caused one set of troubles while the alkaline substances in it caused still other disorders; failing, however, to explain how the water could be both acid and alkaline. As a matter of fact analyses have shown that the water, after treatment with the hypochlorite, has never shown hardness exceeding 50 parts per million, and is generally nearer 25; it is, in fact, said to be about the softest water that can be found in that part of the state.

Dr. A. S. Fell, health officer of Trenton, advances it as his opinion that such increase in disorders of the skin, kidneys, etc., if any, which may have appeared during the past two or three weeks, have been due to failure to use sufficient water externally and internally because of this agitation, and in no case to the use of the water.

An investigation has been begun concerning the reason for these tastes and odors, since some method must be found to prevent them if the fullest possible benefit is to be obtained from the hypochlorite treatment. A similar difficulty, although probably to a less extent, has been experienced in a number of other cities, among these Montreal, Erie, Cleveland and Niagara Falls.

Schenectady's Water Supply.

Schenectady, N. Y., March 5, 1913.

Editor of Municipal Journal,
50 Union Square, New York City.

Dear Sir: Permit me to take an objection to your correspondent's article from Schenectady, relative to our water supply, and printed on page 305 of the recent issue of your most valuable publication.

As a matter of fact both chemical and bacteriological examination of our water supply reveal the most excellent standard in every respect. The water is low in bacteria and chlorine.

The investigation spoken of in your publication has shown that only thirty-two organisms of absolutely non-pathogenic (and not colon bacilli as stated by you) can be detected in cubic centimeter of our water.

The third test made from a sample drawn from a well on South Centre Street was not the city water, but one of the few relics of antiquity of Schenectady, the surface wells.

This investigation brought out seventy-one and not one hundred and seven organisms, and has proved conclusively the impracticability from a sanitary point of view the usage of surface contaminated water from private wells. The Department of Public Safety will no doubt take steps necessary to condemn all such private wells.

Thanking you in advance for giving my note the publicity needed, I remain,

Respectfully yours,

BRADLEY H. KIRSCHBERG,
Chemist.

Largest Commission Governed City.

Our attention is called by Horace E. Flack, executive of the Baltimore Department of Legislative Reference, to an erroneous statement made in a news item which appeared in our issue of February 27. This was to the effect that Denver is the largest city in the country to adopt commission government. As a matter of fact, New Orleans is already under commission government, and its population in 1910 was 339,075, whereas that of Denver was but 213,381.

NEWS OF THE MUNICIPALITIES

Current Subjects of General Interest Under Consideration by City Councils and Department Heads—Streets, Water Works, Lighting and Sanitary Matters—Fire and Police Items—Government and Finance.

ROADS AND PAVEMENTS

Miles of Streets Improved at Corona.

Corona, Cal.—Improvement work in the city is progressing rapidly. Besides the many buildings and residences being erected the city is completing fifteen miles of paved streets, cement sidewalks and curbing. The interior work is now being finished on the new city hall, which will be opened within the next two months. This building when completed will cost \$27,000. The Grand Boulevard, a circle one mile in diameter and a trifle over three miles in circumference, is now being put in shape for the world's greatest racing meet, which will be held Tuesday, September 9, 1913. The cost of improvement work will be about \$65,000.

Creswell Gets Improvements.

Creswell, Ore.—Seven blocks of new two-inch plank walk are being laid in the Bohrnstedt addition to Creswell, and a petition is being circulated for several blocks more. The canning season will see more substantial improvements in regards to streets and walks than ever before. The spirit of improvement has been awakened and all parts of the town will feel its influence. The Southern Pacific Company will at once prepare the grounds north of the depot for parking and the citizens will do the work required to make it a beauty spot to welcome strangers when they arrive at Creswell.

Supervisors Inspect Route of New Road.

Tempe, Ariz.—Conducted by J. C. Ryan, superintending engineer of the new Tempe highway bridge, the Maricopa County Board of Supervisors and State Engineer Lamar Cobb made an inspection trip over the proposed course of the new road which will connect Tempe with the capital city. The local engineers, who staked the road out, have been waiting for some time for the visit of these officials. Their work was completed several weeks ago. A feature that will add much to the attractiveness of the highway as well as to the safety of the pedestrians is the provision for an overhead crossing where the highway crosses the Arizona Eastern Railroad track just north of the bridge. The structure will stand 22 feet in height and will have but a small grade on either end.

Street Work Progressing at Fort Worth.

Fort Worth, Tex.—Three of the principal streets of North Fort Worth are being graded and graveled, and not less than 100 men are working on them. Fifteen teams are being used on Central avenue. The citizens are having the work done. Several large culverts are being placed and cement sidewalks will be constructed along the entire street. The Texas Bitulithic Company, which has the contract for the paving of Denver avenue, is constructing several culverts and cement sidewalks on that street. Beginning with Denver, Sixteenth street will be paved as far as North Main. East Twenty-second street is being graded and graveled.

Want More Durable Material Than Gravel.

St. Augustine, Fla.—On account of the dissatisfaction which has been expressed in connection with the use of Augusta gravel on the public highways it is probable that the Board of County Commissioners may abandon the use of this material in road building and substitute some other and more durable material. After heavy rains it has been found that the Augusta gravel did not hold up well on the John Anderson Boulevard. It is reported that a great

many ruts have been made in the roadbed by the recent rains and this has caused a general revision of opinion as to the durability of this gravel for road surfacing. The matter was given considerable attention at the joint conference of commissioners and the citizens' committee recently. The commissioners from Duval County in attendance generally condemned the material and thought some more durable road surfacing should be substituted. The local board and many of the good roads advocates have been strongly in favor of the exclusive use of this Augusta gravel for all future road work in this county, but since it has been reported that it does not hold up well in rainy spells many of the chief boosters are now in favor of changing to some other material before it is too late.

Offers to Build Own Road.

Battle Creek, Mich.—As an incentive to the county road commissions to construct between Battle Creek and Marshall, and later through the county, a concrete road on the Detroit to Chicago route, C. C. Green, president of the city bank, has put up a proposition that cannot fail to interest the commissioners. Mr. Green owns a farm six miles east of the city, on the Marshall Road. The farm extends for a half a mile on either side of the road. Mr. Green's proposition was that if the commissioners would build the concrete road as suggested, he would build, at his own expense, a concrete road the extent of his own farm, to join with the remainder of the road built by the county.

Builds Street Without Cost to City.

Louisville, Ky.—The Board of Public Works is complimenting City Engineer David R. Lyman upon his ability as a sharp trader and forceful financier. About a year ago the board members decided to pave Main street, between Fifth and Sixth streets, with granite blocks. Persons who spend the business hours of the day on the block drew up a petition asking for wooden blocks in order to lessen the noise incident to the heavy hauling. The board members heeded the suggestion of the petitioners, and ordered the street paved with wooden blocks on the "shoulders" and with granite between the street car tracks. Here is where Mr. Lyman came in. The granite block had already been purchased for the job. Mr. Lyman disposed of the granite at a price that permitted of the construction of the street without cost to the city and added a balance of \$1,285 to the street reconstruction fund.

Cost of Municipal Construction of Highways Investigated.

Chehalis, Wash.—South Bend's mayor and engineer recently visited City Engineer Blair of Chehalis to obtain detailed information on the cost of building streets under the municipal plan, adopted last year with success, both in quality of the work and cost to property owners. Only concrete streets are being built. During 1913 even a greater yardage than last season will be laid, including the Riverside Road for nearly a mile; seven cross streets in the southern part of the city, and several blocks east of the high school. Extensive sidewalk building plans have also been made. The city owns a concrete mixer, wheelbarrows and other equipment, buys its material wholesale and gives the property owner the benefit of construction at actual cost. Despite the fact that sand, gravel and crushed rock, in addition to the cement used, have to be shipped into the city, the work done last year was put in at an average cost of \$1.05 per yard, a big saving over work done by paving companies.

SEWERAGE AND SANITATION

Will Vote on New Sewer System.

Valley Junction, Ia.—Whether Valley Junction accepts its new \$31,000 sewer system will be decided when it is given an official test by the Iowa Engineering Company, which has been retained by the City Council to pass upon the work. The sewer system comprises about five miles of main and is said to be one of the best ever installed in a town the size of Valley Junction. The system empties into a septic tank near the Raccoon River.

Epidemic Traced to Dead Animals in Reservoir.

Front Royal, Va.—A hundred residents of Front Royal and Riverton, adjoining towns in Warren County, are ill of typhoid fever. The origin has been traced to the unenclosed and uncovered reservoir on the Blue Ridge Mountains, from which a dead horse and a bagful of dead cats were dragged. Hundreds of horses on the Government Remount Station, nearby, are said to drink from the reservoir while roaming over the mountains. About twenty Randolph Macon Academy students are ill and others have gone home. Ardleigh College, a girl's institution, and all public schools have been closed. Many residents have taken their families elsewhere until the water is purified. A chemical analysis shows the water contains colon bacilli.

City Council Passes Bread Wrapping Bill.

St. Louis, Mo.—The City Council, by a vote of 11 to 2, passed a bill which originated in the office of Health Commissioner Max C. Starkloff, to compel the sanitary wrapping of every loaf of bread offered for sale in St. Louis. The bill provides penalties. It provides for the sanitary handling of other bakery products in delivery wagons and when on display. On motion of Councilman Paul R. Fletcher, the foodstuffs screening bill passed at a previous meeting, which, however, was found to exempt commission merchants and was termed unconstitutional, because class legislation and discriminatory against the peddler and grocer, was reconsidered and returned to the Sanitary Affairs Committee for amendments.

Begin Sewer Work in Albany Street.

Schenectady, N. Y.—Work on the construction of the lower half of the Albany street 24-inch sanitary sewer to replace the 12-inch sewer which was undermined last month, has been begun, the workmen starting in at Hulett street and working easterly. The undermined surface water sewer, telegraph conduits and street car tracks have been propped up pending the filling in of the trench. Street car traffic will not be resumed in Albany street until after the sewer work has been completed.

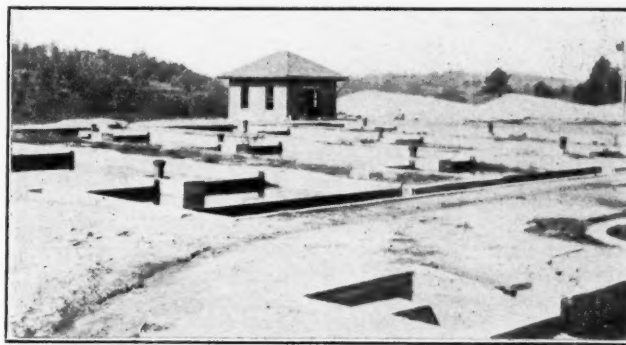
Campaign to Swat the Fly.

Jersey City, N. J.—The Fly Fighting Committee of Jersey City has organized and outlined a campaign for the coming season. This committee consists of Mrs. Brice Collard, who for several years has conducted a very able campaign against the fly, chairman; Mrs. C. B. Miller, Hugh A. Kelly, secretary; Rev. A. Sweet, and Willard C. Mallalieu, sanitary engineer. Plans were discussed for exterminating the fly through the elimination of its breeding places, and maps will be prepared by the sanitary engineer showing the location of these breeding places and their relation to the deaths from fly borne diseases. The committee calls attention to the following section of an ordinance of the Board of Health: "Section 8. Every person using within Jersey City any building or any portion of a building in the city of Jersey City as a stable for one or more horses, mules or cows or other animals, shall report that fact to the health officer in writing within thirty days after this regulation takes effect, giving his or her name, and the location of such stable, and the number and kind of animals stabled therein; and thereafter every person occupying any building or any portion of a building, in the city of Jersey City for the purpose aforesaid

shall report in like manner his or her name and the location of said stable and the number and kind of animals stabled therein, within five days after the beginning of his or her occupancy of such building." The penalty for non-compliance is a fine of not less than \$10 nor more than \$50.

Commissioner Finds Disposal Plant No Nuisance.

Milwaukee, Wis.—Mayor Bading and Commissioner of Public Works F. G. Simmons recently made a trip to Atlanta, Ga., to inspect the Proctor Creek sewage purification plant. This type of sewage disposal plant has been projected for Milwaukee, but when it was proposed to locate the plant on the south side a strenuous objection was raised by the residents of that section. The



IMHOFF SETTLING TANKS AT ATLANTA, GA.

accompanying illustration shows the Atlanta plant, where sedimentation tanks are used in combination with Imhoff tanks. "There were 5,000,000 gallons of raw sewage passing through the plant while we were there and there was absolutely no smell," said Commissioner Simmons, speaking of the trip.

WATER SUPPLY

Lampasas to Build New Standpipe.

Lampasas, Tex.—Ground has been broken for the new standpipe for the city water works, a new location having been secured on the corner of Spring and 6th streets. The new pipe will be double the size of the present structure, the contract calling for 50 feet in height and 15 feet in diameter. It is proposed to have it finished and in operation by June 6.

Water Works for Cimarron.

Cimarron, Kan.—Work has begun on the new water-works system, a rehabilitation of the system installed in the early boom days. The construction of the power house has also been commenced. It is proposed to push the work to completion without delay.

Fine Water System Nearing Completion.

Biloxi, Miss.—Work is progressing rapidly on the new 100,000-gallon reservoir which is being put in by contractor Giles Harkness under the direction of Water Works Superintendent E. L. Castanera. "When the reservoir and pump house are completed," said Mr. Castanera, "I believe Biloxi will have as fine a water works system as any city of similar size in the United States." The reservoir is 2 feet below the surface of the ground and stands about 12 feet above the ground. The walls and top will be of reinforced concrete which will be practically indestructible. The walls will be 12 inches thick at the bottom and 10 inches thick at the top. The top of the structure will also be of reinforced solid concrete with a substantial centre post. The pump house is a substantial one-story brick building. It will have three electrical pumps, two for fire use and one for service. In addition to that, connection will be maintained with the steam pump at the manufacturing plant of the T. J. Rosell Co., so that, while this steam pump will not be used, it will be available in any conceivable emergency. Water is supplied to the consumers for general use in the city direct from the city's three wells, which have a capacity of 1,700 gallons per

minute, while the pumps will pump 1,500 gallons per minute, and that is much more than Biloxi will need. The approximate cost of the reservoir and the pump house is \$5,000.

STREET LIGHTING AND POWER

Install New Lighting System.

Oacoma, S. D.—The main business street has been beautified by the installation of cluster lights, making it one of the best illuminated streets in central South Dakota.

Celebrate Electric Lighting at Cedar Springs.

Cedar Springs, Mich.—The formal celebration of the turning on of the new electric street lights included burning the ladders which were formerly used in lighting the street oil lamps. The new lights are handled by the Grand Rapids-Muskegon Power Company.

Williston Gets Cheaper Lights.

Williston, N. D.—Citizens of Williston, particularly those using electric light and power, are rejoicing because of the fact that they see in the near future a possibility of practically cutting in two the present electric rate. Since the city has connected up with the big electric plant at the government reclamation power house the entire light bill for the city has been a great deal less than it cost to operate the old city plant. For the month of January the bill of the government was \$1,582, or an average of a little over \$50 per day for all lights used by the city and private residences and business houses. The average rate paid now is about 12 cents and as soon as some additional city equipment is installed a substantial cut will be made in the city rates, giving Williston the cheapest electric rate of any city in the State.

Work on the White Way Starts.

Chattanooga, Tenn.—Work on the great white way for Market street has commenced. The first step is to open Market street near Sixth to lay the conduits and arrange for the location of the posts. The beginning of the construction work means that the white way will be in operation within a short time. It is a project that has long been before the merchants and citizens, and its accomplishment is now a thing of great credit to the men who have worked on it.

Light Company Earns 3 Per Cent. Profit.

Fort Worth, Tex.—The profits of the Fort Worth Power and Light Company for the year 1912 amounted to \$116,541.26, according to an annual statement presented to the city commission. The Fort Worth Gas Company did not fare so well in its year's business. After deducting the operating expenses from its gross receipts a net profit of \$18,811.44 was left. The company is capitalized for \$800,000. This shows an earning of less than 2½ per cent. for the year. The power and light company paid slightly above 3 per cent. It is capitalized for \$3,560,000. Following are the figures submitted in the reports: Power and Light Company—Gross receipts, \$520,556.50; operating expenses, \$404,015.24. Gas Company—Gross earnings, \$134,448.94; operating expenses, \$115,637.50.

Supply Electricity to Many Towns.

West Plains, Mo.—When President Frank F. Hill, of Memphis, Tenn., opens the circuit and turns the current of electricity onto the wires from the Mammoth Springs in Arkansas to the city power house in West Plains, the whole Ozark country will enter an era of development. Many factories to use this power are projected, and a great white way is planned from the Frisco station to Court Square in West Plains. The towns of Thayer, Koshkonong and Brandsville are being supplied also. The Mammoth Spring Electric Light and Power Co. was incorporated under the laws of Arkansas in 1910, for the purpose of constructing and operating hydro-electric plants on Spring

River, in Fulton County, with power to sell electrical energy throughout Arkansas and the State of Missouri. The city of West Plains has owned the water and light plant since it was built, in 1900, and when the opportunity came last spring to make a contract for cheap electric power from Mammoth Spring, the proposition carried by a big majority after having been indorsed by the Commercial Club and the three newspapers. It was determined to have a celebration in keeping with the importance of the event when the power was ready to "couple on," and a committee headed by Mayor C. T. Aid was appointed by Dr. A. H. Thornburgh, the club president, to have charge of the affair, which consisted of an inspection of the plant at this end, concluding with an elaborate banquet at the Arcade Hotel at night. Frank F. Hill, of Memphis, Tenn., president of the power company, and E. C. Bellamy, general manager of Mammoth Spring, being among the guests of honor.

Will Improve Light Plans.

Brownwood, Tex.—The Texas Power and Light Company has begun work on a \$70,000 improvement of its Brownwood plant. The present plant has been entirely too small for the city for some months and it is stated its capacity will be enlarged three times. W. C. Kiker, erecting engineer for the company, has arrived in the city and has commenced work on the foundations for the new machinery and the work will be rushed until Brownwood will have one of the best lighting systems in the State.

FIRE AND POLICE

Bars Let Down for Firemen.

Boston, Mass.—Under-sized applicants for appointment to the fire department have succeeded in having the City Council legislate for them. An amendment to the ordinance has been passed giving the fire commissioner permission to appoint from the civil service list those candidates from 5 feet 6 inches in height and upwards and weighing 135 pounds, although the ordinance places the minimum height at 5 feet 7 inches and the weight at 140 pounds. The amendment will affect 54 men who are on the civil service list.

New Badges for Policemen.

Pueblo, Colo.—Badges for members of the police department, bearing the seal of the city and the number, instead of the old-fashioned stars as have been worn for years, have been decided upon by Commissioner Donnelly and Chief Daly. They will be ordered for delivery at the time the new summer uniforms go into effect. The new summer uniforms call for white waist-coats. For winter wear the officials have decided upon long outer coats with belts on the outside, such as are worn in the larger cities. New caps of the "dropped bill" pattern for the members of the fire department have been decided upon by Chief Christy and Commissioner Donnelly.

Fire Totals Decrease.

New York, N. Y.—According to Fire Commissioner Johnson there were 1,006 fewer fires in the first two months of 1913, than in the same time in 1912. His totals are:

	1912.	1913.
Jan.....	1,780	1,168
Feb.....	1,513	1,119
Totals.....	3,293	2,287

The Commissioner, without making any reference whatever to the fact that this winter has been much warmer than last, asserts that all of the decrease in fires is due to his fire-bug crusade. "In the 'fire-bug' zone in the upper East Side," he says, "fires were reduced more than 50 per cent. in February as compared with 1912. They were reduced 66 2-3 per cent., as compared with 1911. The Fire Marshals report that in the very heart of the 'fire-bug' zone, where there were forty-two fires in February, 1911, and thirty-two in February, 1912, there were only fourteen fires in the month just past."

MOTOR VEHICLES

Palatka's New Auto Truck in Fire Service.

Palatka, Fla.—The acceptance by the city council of the splendid new double tank chemical auto fire engine is another long stride forward in Palatka's progress. A number of tryouts have been made with satisfactory results and now that the city's firefighting equipment has been increased and improved the lowering of fire insurance rates will, as a consequence, follow. An experienced driver and attendant, who will always be on the job, will have charge of the machine, which in addition to the services of a volunteer department provided with all needful apparatus, will reduce to a minimum the element of risk and danger to property within the limits of the city.

Inspect Engine.

Waterbury, Conn.—Mayor Francis T. Reeves, together with several public safety commissioners and Chief Snagg of the fire department went to Paterson and Atlantic City, N. J., recently, where they witnessed a demonstration of the pump engine of the Robinson Co., of St. Louis. Atlantic City is the nearest place where the company has a pumping engine that could be demonstrated and as the Robinson people are very desirous of disposing of one of their machines to the city, the officials were induced to make the trip for an inspection of the machine.

Fort Dodge Buys Auto Fire Truck.

Fort Dodge, Ia.—Fort Dodge has fallen in line with three other Iowa cities which have automobile fire trucks. Councilman C. H. Smith, commissioner of public safety, announces the city has purchased a \$5,500 truck which will run forty miles an hour. Because Fort Dodge has many hills that tire horses badly, especially on long runs, it was decided advisable to purchase the auto truck. Oskaloosa, Iowa City and Waterloo are the other cities in Iowa which operate the fire trucks.

New Auto Fire Engine Arrives.

Washington, D. C.—The new automobile fire engine ordered by the District of Columbia from the Ahrens Fox Fire Engine Company of Cincinnati, Ohio, reached Washington from Baltimore, making the run over from that city in an hour and forty minutes. The engine will be tested and if it comes up to requirements it will be installed at chemical company No. 5 in Congress Heights, which will be changed to No. 25 engine company. Thomas M. Robinson, superintendent of machinery of the local fire department, went to Baltimore and witnessed an inspection of the engine, which was conducted by Chief Engineer August Emrich of the Baltimore fire department. Mr. Robinson and 25 members of the Baltimore fire department made the trip from that city to Washington on the engine. The engine has a capacity of 700 gallons a minute. At the test in Baltimore it is said to have indicated a capacity of more than 800 gallons.

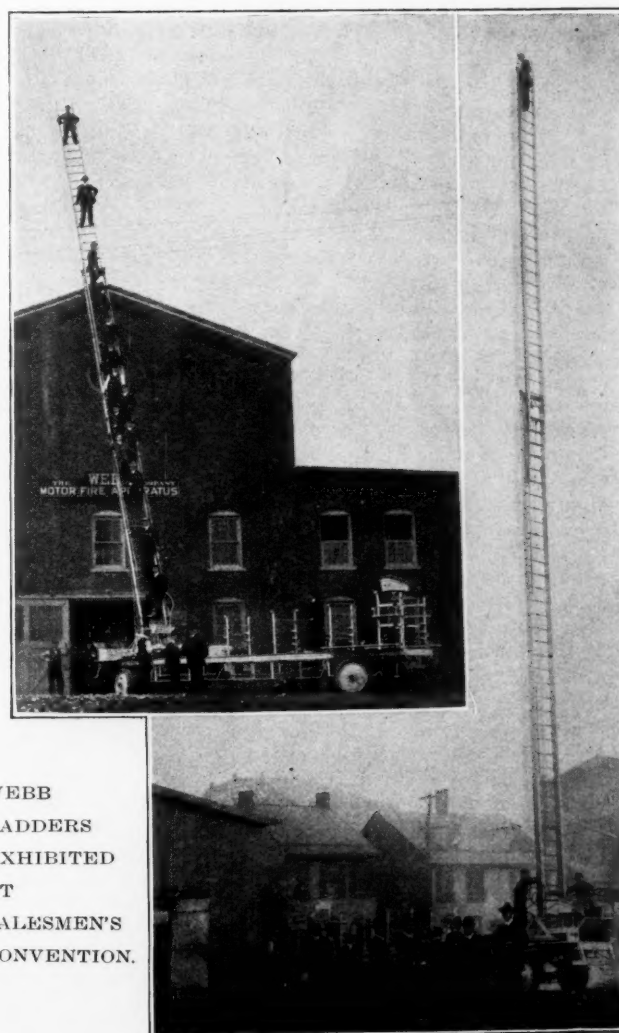
Official Test Proves Most Satisfactory.

Sharon, Pa.—The Robinson motor fire truck proved to be all that was claimed of it by the agent, who represented himself in council some time ago, in behalf of the truck company. The truck was given a thorough try out and it showed that it is capable of doing all that is asked of any truck. The local councilmen and several Farrell councilmen and a number of visiting fire chiefs were present and at 1.30, 15 men boarded the truck and were taken to the top of the West Hill on second speed. This is some pull for any truck and the new fire fighter did not hesitate but climbed the hill with ease. Next the truck was driven to Lincoln avenue. At the bottom of the hill the truck was stopped and then it started on the hill and made the climb up the steep grade. Next the truck was driven to Farrell where the worthy citizens of that place made a minute examination of the buzz wagon. The "Pride of Sharon" was brought back to the fire station and loaded with hose for a pressure test. The test was to be held on Vine

street near the Masonic Temple, but owing to the weak gaskets on the hose, a test could not be made, for when the pump on the engine was started the hose would miss the connection at the plug and the bystanders were treated to a shower bath. Many attempts were made to fasten the hose securely but the pressure was too strong and it was at last given up. The machine was next taken to the Chestnut street bridge to try its power by drawing water from the river. A 6-inch intake hose was dropped into the river and the motor pumped the water from the river into the hose with a 190-pound pressure, which is more than will be needed. The truck is guaranteed to lift the water eight feet to the wagon but the water was drawn 22 feet in the test. The hose threw a stream estimated at 200 feet in the air. A large crowd witnessed the tests and all were enthusiastic over the showing made by the truck. The firemen are greatly in favor of the truck and will soon learn to handle the mechanism.

An Exhibition of Webb Ladder Trucks.

Allentown, Pa.—Interesting exhibitions of motor aerial ladder trucks, designed to show the strength of the ladders and their accessories, were given at the recent convention of the salesmen of The Webb Company. Before the machines were taken out in the yard an 85-foot ladder was raised to its full length at an angle of about 30 degrees. Only a ladder made of the best material and laminated side pieces with perfect joints and anchorages could stand such a strain. Out in the yard, as shown in the illustrations, men climbed up, giving them another good test for weight. After this, a line of hose was run up and a stream from a new 750-gallon engine was thrown from the top. The ladder trucks shown will soon be in service, one in Philadelphia and one in Washington.



Praises Goodyear Fire Truck.

Bay City, Mich.—“The cushion effect of the Goodyear cushion fire truck tire far exceeds my expectations,” writes W. H. Gault, assistant manager of the fire apparatus department of the Knox Automobile Company, Springfield, Mass. “Last week I made 20 miles on a set of 40x3½ dual rears and the machine rode almost as easy as on pneumatics. The fact that manufacturers are endorsing Goodyear fire truck tires, is largely due to the fact that there are four fire truck tires in our line—one for every service,” says F. H. Sawyer, manager of the fire truck tire department of the Goodyear Tire & Rubber Company. “Consequently our salesmen are enabled to recommend to our customers the tire which they have found to be best fitted to cope with the conditions each particular fire truck must meet, and thus they can select the particular tire that will give the most mileage at the least cost.”

Webb Pumping Engine Stands the Tests.

Lynn, Mass.—What will probably be the final test of the new Webb pumping engine for the fire department to be located at the Glenmere house was made on the boulevard in the presence of several members of the city government, the fire officials and men from the New England board of underwriters. These consisted of an endurance test and the wagon run test, and both were extremely satisfactory. For two hours the engine was operated with two lines 200 feet long through which a continuous stream was sent, the volume and length never decreasing for a moment. In the wagon run test the engine did excellent work and the officials are satisfied that the engine will do all that the makers claim for it. John S. Caldwell and B. E. Ames from the office of the underwriters had charge of the tests, which showed during the endurance run, that the engine threw 726 gallons per minute throughout the run, an excellent average. It is probable that the engine will be turned over to the city and at once located at Glenmere.

Propose Motorizing Entire Department.

Morristown, N. J.—Figuring that automobile apparatuses are cheaper than fire horses, the fire committee, headed by Alderman Reed, will propose to the Board of Aldermen, at its first meeting, that the entire fire department be motorized. The apparatuses include a patrol wagon, to be a fire and police patrol, and an emergency ambulance. At a meeting of the Board of Fire Wardens they accepted a proposition to finance the note for \$3,000 for such a patrol. They will pay \$500 on delivery of the machine and the city will pay \$500 for its acceptance. It will be agreed by the town to pay off each \$500 on the note. A pumping engine costing \$7,500 will go to Humane Engine Company. The hose wagon will be sold but the steamer kept in reserve. By means of a tractor, the Washington Engine Company's steamer will be propelled by motor. Chauffeurs will be obtained by arrangement with a garage firm. Averaging 25 calls a year, which is more than a maximum here, a chauffeur for the “Washies” and First Wardens can be employed for \$150 per year. The Humane's appropriation will be increased to \$600. The care of the Warden's patrol will amount to \$250. That comes to \$1,000. Taking the current expenses of the autos from that of the horses there is a difference of \$690.

City Has Low Fire Insurance Rate.

Muskogee, Okla.—The fire department of the city of Muskogee, under the supervision of Commissioner of Public Safety John Boen and Chief John L. Templeton, is considered one of the best equipped and most efficient departments in the southwest. The department embraces a central headquarters in the city hall and the three stations. Forty men are constantly on duty in the service at the different stations. The equipment includes one chief's auto, 2 auto combination hose and chemical wagons, 3 hose wagons, horse drawn, 1 75-ft. aerial hook and ladder truck, 1 city service hook and ladder truck, 3 steam fire engines, 1 double 80-gallon chemical engine, 8,000 feet of hose. The men and equipment are housed in four double fire stations of the latest type of construction. The alarm

system is the celebrated Gamewell system of fifty boxes, located throughout the city and suitable at any time for enlargement to meet the demands of a city of 100,000 population. The record of the department for 1912 was 255 fires with a loss of \$20,000 in the city proper and a total loss of \$59,000 represented in the city and outlying districts. Property to the valuation of \$800,000 was directly threatened. No fire occurred where the loss was more than \$5,000 in any one instance. The insurance rate for Muskogee is the lowest in the state and is due in a large measure to the recognition by insurance companies of the known and tried efficiency of the Muskogee fire department. Fire Chief John L. Templeton, the active head of the department, is one of the best known fire chiefs in the west and a recognized authority in all matters pertaining to the service. He has had many years of experience in fighting fire in Oklahoma and other states and to his efforts and discipline is due the high personnel of the men and equipment.

GOVERNMENT AND FINANCE

City to Pay Back \$11,321 Taxes.

Lawrence, Mass.—The city of Lawrence is ordered to pay back \$11,321.46 as a tax abatement to the Essex Company by a decision of the supreme court. The supreme court affirms the finding of Commissioner James F. Jackson that the city overtaxed the company by \$690,333 in 1909. The tax rate was then \$16.40 per thousand. The Essex Company is a corporation maintaining at Lawrence a dam, wings and canals for the development and distribution of water power of the Merrimac river.

Commission Plan Defeated.

Pontiac, Ill.—Two Illinois towns voted against the commission form of government at special elections and a third declared for it. Pontiac defeated the proposition by a score of 597 to 300 and Taylorsville acted likewise by a count of 513 to 363. Murphysboro was the one town which wants the board rule. At this election the town went on record as favoring the project by a vote of 703 to 347.

Commission Plan for Charlotte.

Charlotte, N. C.—Copies of the proposed commission plan of government for Charlotte, modelled largely after the Des Moines and the Greensboro plans have just been made public. The commission form provides for a council of three members, the councilman of audit and finance of public safety. These shall devote their time to the city's interests, and all motions and resolutions made by the body at its formal sittings shall be in writing. These three men have the appointment and control of the various city departments and are empowered to assess and levy all taxes, control corporations, etc. It is also provided that franchises cannot be granted unless first formally passed on by the council and then submitted to vote of the people; likewise with any issue of bonds.

Los Angeles Act Is Upheld.

Los Angeles, Calif.—Validity of a Los Angeles city ordinance establishing a public utilities commission and ordering reduced telephone rates was passed upon by the United States supreme court when it reversed a decision of the district court of Southern California, which in effect dismisses a suit of the Home Telephone Company against the city to enjoin operations of the law.

Controversy Over Lawrenceburg Charter.

Lawrenceburg, Tenn.—A misunderstanding as to the meaning of the city charter has arisen between the election commissioners which will probably go to the courts for a settlement. The original charter for the town provided for four wards and two councilmen from each ward. In 1911 the charter was amended creating a fifth ward but providing for no councilmen. When the election commissioners met F. P. Buchanan and W. J. Gilbreth contended that

since the original charter provided for two councilmen from each ward, that they should make the call for ten councilmen, while F. C. Wisdom, the other member, took a different view that no provision had been made for electing but eight councilmen. The majority member of the board called the election but without the signature of Mr. Wisdom.

Commission Wins in Garnett.

Garnett, Kan.—Commission government carried in Garnett by a majority of 240. It carried in every ward in the city. About 80 per cent. of the total vote, including the women votes, were polled.

STREET CLEANING AND REFUSE DISPOSAL

Covington Plans to Become Spotless Town.

Covington, Ky.—Covington is destined to become a "spotless town." Here is what the health officials accomplished in six hours: Arrested two men for expectorating on the floors of street cars; adopted resolutions placing the ban on the bread boxes outside of groceries; instructed doctors to report transfer of tuberculosis patients; compel taxpayers to connect property with sewers; prohibit littering of streets with paper.

Will Clean Up City.

Spokane, Wash.—"Cleaning week"—April 14-19. This is the date determined at a recent meeting of the Ad Club for a complete renovation and house cleaning of the City Beautiful. Every good citizen will be urged by the special committee, of which Clair Carter is chairman, to get out the rake, scrub brush and dust cloth and enter into the greatest house-cleaning and lot beautification campaign ever inaugurated in Spokane. The city is to have a real home-cleaning this year, and as the campaign has met with the co-operation of the city commissioners and the health department, there is every indication now that it will be a tremendous success.

Mounted Police Aid Garbage Lifters.

Trenton, N. J.—Mounted police were obliged to guard the men collecting garbage in Trenton last week. The regular collectors are on strike for more money and their places were taken by strikebreakers. Every wagon had two men in charge and one mounted officer following.

Movement Started to Clean Up City.

Chattanooga, Tenn.—"Flowers, flowers, everywhere, home gardens and a cleaner city," is the slogan of the City Beautiful Club, the school improvement leagues and the City Federation of Women's Clubs for the clean-up crusade which begins in Chattanooga Monday, March 10, and lasts for one week. Enthusiasm in all these organizations is at a high pitch and they declare that they are going to make the city cleaner this year than ever before. They have the hearty co-operation of the commissioners and the police department in this work, the commissioners already having promised to furnish wagons and extra help in hauling away the rubbish that is collected. Mrs. P. J. Kruesi, general chairman of the City Beautiful Club, said that club, with the co-operation of the other civic organizations of the city, is planning an extensive crusade on the filth and rubbish that has accumulated in alleys and vacant lots of the city, and has sent to Washington for seeds to beautify the yards and lots. Mrs. Kruesi said that Mr. Grimmer, superintendent of the scavenger service, already had men at work cleaning the streets and alleys. She said it was the wish of the club that red, white and blue flowers be planted in honor of the confederate reunion in May, and that by the time for this big event, they hoped to have the city in fine sanitary shape. All improvement leagues, she declared, were joining the clean-up movement very enthusiastically, not only in the city, but in the suburbs as well, especially in the schools, civic leagues having already been organized.

Slaton Cleaning Up.

Slaton, Tex.—Following the passage of the city ordinance requiring the cleaning up of all premises and streets and alleys within the corporate limits of Slaton, a clean-up campaign has been waged, and the business section now is a thing of beauty, with all the rubbish removed. The city will put out hundreds of shade trees this spring and will water them from a well placed on the public square.

New Garbage Rules in Effect.

Newark, N. J.—The Board of Works new ordinance regulating garbage and ashes collection is now in effect. In the future householders will have to separate garbage, ashes and paper. Both ashes and garbage must be placed in metal receptacles. Joseph Marrone, the contractor, told the board that he was prepared to carry out the provisions of the measure, so far as it relates to the style and method of handling wagons. The commissioners told him they would hold him strictly accountable for the fulfilling of his contract from now on. Owners of tenement houses are especially affected by the ordinance in the following section: "The owner of each tenement or apartment house occupied or arranged to be occupied by more than three families, shall provide, and renew when necessary, sufficient receptacles as specified in this section for the use of each apartment in the building and said owner shall also see that arrangements are made for the placing of such receptacles in some convenient place on the ground or basement floor, easy of access for the purpose of collection."

RAPID TRANSIT

Asks for One Cent Fare.

Marshall, Mich.—Representative James Henry has introduced a bill which provides for a maximum rate of one cent a mile on all electric lines on public highways in Michigan. This in no way affects roads that own their right of way. The roads that would be affected are: Detroit to Port Huron, Detroit to Pontiac, Detroit to Mt. Clemens, Jackson to Lansing, and Kalamazoo to Detroit lines. The committee is now investigating the conditions under which the various roads are operating and seeking to ascertain the reason for the varying rates throughout the state. The rate from Battle Creek to Jackson, 46 miles, is 20 cents, while from Detroit to Pontiac, 26 miles, the rate is 25 cents.

Transportation Company Pays Franchise Tax.

San Pedro, Cal.—According to a report of the San Pedro Transportation company on its first year's business under a franchise granted by the city, the city is entitled to \$753.12 of the company's gross receipts. By the terms of its franchise the company must pay two per cent. to the city. The report shows a total income of \$37,655.75.

Bills Drawn to Enable City to Build Subways.

Philadelphia, Pa.—Mayor Blankenburg's program of legislation for making possible the development of subway construction has been announced by Director Cooke, of the department of public works. Drafts of three acts, prepared by John G. Johnson, Charles L. McKeehan, Parker L. Williams and A. C. Stamm, of Harrisburg, were made public. The plan for raising the necessary money is to make the personal property tax a city instead of a state tax. The city now receives three-fourths of the personal property tax, but the chief advantage of permitting the city to levy the tax, instead of the state, would be that the city's borrowing capacity would be increased \$40,000,000. The additional revenue would help to pay the interest and sinking fund charges on the bonds. One of the bills gives the city the power to build, operate or lease transit facilities, the later phrase being defined so as to include every type of urban transit construction. The necessity of such legislation was pointed out in the same opinion of the city solicitor, in which it was suggested that the personal property tax should be levied by the city. Another of the

bills prepared by Mr. Johnson and his associates provides for the creation of a department of city transit. The director is to be appointed by the mayor, but he is to have power to appoint his assistants. The director is to furnish a bond of \$25,000. The salary is not stated. The director of city transit is to have supervision of all transit facilities owned or operated by the city. He will also supervise the construction of transit lines.

New Type Car.

Los Angeles, Cal.—Members of the council and board of public utilities were the guests of Pacific Electric officials recently on a trip to inspect a new type of center entrance cars built in the company's shops in Los Angeles. The car was run from the Hill street station out Sixteenth street and the councilmen practiced getting on and off through the proper entrances and exits. The car has two entrances and exits on each side. When the entrances and exits on one side are in use, those on the opposite side are replaced with six seats for passengers. There are three steps, instead of two as in most cars, leading to the entrances and exits. This is designed to bring the bottom step nearer the ground. The car seats 54 persons, there being seats for 24 in the inclosed portion, 24 in the outside portion and six outside opposite the entrances and exits. All except these last six seats are arranged crosswise of the car.

Closed Cars Must Lower Steps.

New York City.—An order limiting the height of street car steps to 15 inches has been passed by the Public Service Commission for the First District. Some time ago a number of women's clubs complained to the commission that some of the street cars had steps so high that it was difficult for women to board the cars. Investigation showed that the height of such steps varied from 12 to 20 inches, and that a height of 15 inches would be reasonable. Accordingly, most of the street surface car companies of the city have been ordered to put their equipment in such shape that no car step shall be higher than 15 inches from the ground. The companies operating in the Borough of Queens will be allowed until January 1, 1914, to alter 50 per cent. of their equipment and until January 1, 1915, to alter the remaining 50 per cent. Companies in the other boroughs are expected to make the necessary changes during the coming summer. The order applies only to the closed cars, as the open cars used in summer are so constructed that it would be difficult to remodel them. The order does not affect the Third Avenue Railway Company, which is already using folding steps of the proper height, nor the companies operating in Richmond borough.

MISCELLANEOUS

Budapest Owns Many Shops.

Budapest, Hungary.—The city of Budapest has invested \$100,000 in municipal shops, where meats, poultry and dairy products are sold at "reasonable" prices; that is, at prices which yield 5 to 6 per cent. net on the capital. The city has gone into slaughtering and has killed 10,000 horses in a year. The demand for horse meat is increasing. There is also a municipal bakery, which has turned out 81,000 pounds of bread a day and is being increased to a capacity of 110,000 pounds a day, or more than 13 per cent. of the city's total daily bread consumption. The city has also formed a company to import fresh meat from Roumania and Servia.

Want City Law for Shade Trees.

Council Bluffs, Ia.—The executive committee of the Commercial Club will ask the mayor and city council to draft an ordinance designating the variety of shade trees which shall be planted in the city, the distance between trees which shall be observed and the height at which trees must be trimmed. The movement is in line with the park development idea which, it is hoped, can be carried out in this city, and is designed to secure uniformity in

trees which may be planted in the future. By the adoption of a uniform plan it is believed that the natural beauty of the city in future years will be greatly enhanced. The details of the proposed ordinance were not worked out by the committee, however. It was suggested that a number of standard varieties of trees be selected, and that it be made mandatory that these be planted uniformly. It is also planned to lay down rules to be observed in keeping the trees trimmed.

Will Publish Municipal Gazette.

Sacramento, Calif.—City Clerk M. J. Desmond, acting under directions of the city commission, is preparing for the publication of a weekly Municipal Gazette, as required by the charter. The Gazette will contain accounts of the commission's actions and also advertising, now done in a daily newspaper.

Mayor May Pay for City Paper.

Atlantic City, N. J.—Should Mayor Riddle persist in his determination to issue a municipal newspaper, despite the protests of taxpayers, he will in all probability be compelled to shoulder the expense. Charles R. Moore, an extensive property-owner, served notice on the city commission that he will apply through counsel for a writ of certiorari against the project. The Mayor has expressed willingness to foot the bill in the event of the success of Mr. Moore's action.

Object to Town's Name.

Pontiac, Mich.—The city of Pontiac objects to the Canadian Steel Company's plan to name their new city opposite Detroit Pontiac. Members of the city commission are to take formal action to prevent such a christening, as they say that the proximity of the two towns would result in much confusion.

Convert Vacant Lots Into Lawns.

Muskogee, Okla.—The city commissioners and the park board of Muskogee are working out a plan to beautify the city by making lawns of the vacant lots. The city proposes to sow Bermuda grass on all of the vacant property over which it exercises control, and a committee has been appointed to canvass the owners of vacant lots in the downtown districts and get them to agree to sow grass on those lots this spring and keep it closely cropped.

Safety Ordinance.

Louisville, Ky.—The city attorney's office has provided John Schneider, business agent of the United Trades and Labor Assembly, with a correctly drawn copy of an ordinance which provides for several reforms in the manner of conducting the construction of buildings. It makes it compulsory upon contractors to place flooring on all buildings in the process of construction not more than two stories below where the men are at work. It is also provided that a screen must be erected behind men catching red-hot rivets, so that in case of a miss they will not continue far enough to injure anyone. No rivets may be thrown a greater distance than ten feet. A fine of \$50 is provided for violation.

Municipal Film Exhibition Given by Commissioners.

Iola, Kan.—Iola's first municipal picture show was given before an audience that packed the city building. The city is just rounding out its third year under the commission form of government, and the exhibition was designed to demonstrate the efficacy of the new rule. The pictures shown gave the taxpayers a look into the records in the office of the city clerk and views of the water, light and power plants, water supply and fire and street departments. Mayor Bollinger and Commissioners Glynn and Freeman were present to explain any record or film not clear to the spectators. Claremore, Okla., has requested that the exhibition be given in that city, as the people there vote on the adoption of the commission form of government soon. After the show, final details for the office of county farm adviser were completed.

LEGAL NEWS

A Summary and Notes of Recent Decisions— Rulings of Interest to Municipalities

Assessments—Statutes—Single Subject.

Cote et al. v. Village of Highland Park et al.—Loc. Acts 1907, "An act to regulate the making of special assessments within the limits of" four distinct villages adjoining the city of Detroit, is invalid as violative of the constitutional prohibition against the inclusion of more than one subject in an act. Supreme Court of Michigan, 139 N. W. R., 69.

Ordinances—Rendering Fats—Discrimination.

An ordinance, prohibiting the rendering of certain substances, which applies to every rendering plant in the city within that class, cannot be regarded as an unlawful discrimination. Supreme Court of Wisconsin, 139 V. W. R., 199.

Street Widening—Easement Acquired.

Preston v. City of Newton.—An order of a board of aldermen, taking land for street widening, recited that an easement was also taken, as shown by the plan in the land adjoining the street as widened, consisting of a right to have the land of the location of such way protected by having the surface of the adjoining land slope from the boundary of the location of the street as widened, and the plan indicated that the proposed slope line of easement was wholly outside of the street line. Held, that the easement sought to be acquired was that of having maintained, as a slope, the adjacent land beyond the limits of the street as widened.—Supreme Judicial Court of Massachusetts, 100 N. E. R., 641.

Forts—Public Property—Used for Profit.

Davis v. Inhabitants of Rockport.—Where a town had made no public use of common lands within its limits, but had surveyed part of them and permitted the erection of cottages thereon, which it leased for a substantial rental, it was liable to a private citizen for injuries caused by defective planking over a chasm between a street and a common passageway reserved by it.—Supreme Judicial Court of Massachusetts, 100 N. E. R., 612.

Streets—Encroachments—Officers.

Acme Realty Co. v. Shinasi.—No local authority whatsoever can authorize any private individual to encroach on a public street. Supreme Court, New York, 39 N. Y. S., 266.

Streets—Establishment and Acceptance.

City of Silverton v. Brown et al.—Under Laws 1893, which provided that all county roads within the limits of a city, which had not been laid out or accepted as streets by the city council, should remain county roads until so laid out or accepted by ordinance or resolution, but that when any part of a county road within the city limits till so laid out or accepted by ordinance or resolution it should become a street, the use of a highway adjacent to the land in controversy, and control of an improvement thereof by the city, would not, of themselves, constitute a street, so as to impress upon the land an easement sufficient to entitle the city to recover in ejectment. Supreme Court of Oregon, 128 P. R., 45.

Ordinance Regulating Car Fares—Reasonableness.

Portland Ry., Light & Power Co. v. City of Portland, Ore., et al.—Ordinance requiring street railroad companies operating car lines under franchises granted by the city to provide registers in each car on which the conductor shall ring up the fares collected, providing that, "when the number of fares received equals the seating capacity of the car of two feet for each passenger," the conductor shall only be allowed to charge three cents for each

passenger admitted, instead of the regular fare of five cents, that any car shall receive passengers to the extent of the standing room therein, and that for its willful violation for the period of one month the council may declare the franchise of the company forfeited and remove its tracks from the streets, without providing for any hearing or judicial determination of its rights, is unconstitutional and void not only as an impairment of the contract made by a company's franchise and depriving it of its property without due process of law, but as uncertain and unreasonable.—United States District Court, 207 F. R., 119.

Street Railroads—Maintenance of Streets.

City of Danville v. Danville Ry. & Electric Company.—Where the franchise of a street railway company obligated it to keep so much of the street as lay between the rails and two feet outside in good order and repair, the street railway was obliged not only to keep the street in good repair but to repave with the same kind of material as the city uses for the rest of the street, when the municipality decides that, in the interests of progress, a new pavement is necessary, for not only is a franchise to be strictly construed, but "in good repair" does not mean "in good order"; the latter being equivalent to "good condition." Supreme Court of Appeals of Virginia, 76 S. E. R., 913.

Use of Streets—Franchise—Forfeiture.

State, on Inf. of Jones, Circuit Atty., ex rel. City of St. Louis v. Light & Development Company of St. Louis.—The grant by a municipality of a franchise to use its streets is the exercise by delegation of a power which resides in the state, and which is by its nature governmental; hence, if grounds for forfeiture arise, the state may alone enforce it, and may alone waive it; for a franchise may be said to be a grant from the state to a corporation of authority to occupy the city streets, "licenses" to be the designation by the city council of the streets to be occupied, and the "contracts" the stipulated arrangements between the companies and the city as to the manner of occupancy. Supreme Court of Missouri, 154 S. W. R., 67.

Paving—Enjoining Performance.

Cherry et al. v. Bowman et al.—Where a contractor under a contract for street improvements is not about to proceed or threatening to proceed with the execution of the contract before the determination of matters which must be determined before the contract becomes binding on the improvement district, the mere possibility that he may so proceed does not justify an injunction restraining performance and canceling the contract. Supreme Court of Arkansas, 152 S. W. R., 133.

Privilege Tax—Express Company.

Ralph A. Ewing, Plff. in Err., v. City of Leavenworth.—An annual privilege tax levied by a municipality upon the business of an express company, expressly excluding commerce of an interstate character and business done for the government, and covering solely the local business done at that point in receiving packages transported from other points in the state, and in transporting packages to like points, is not invalid because such transportation is over a route which, for a short distance, passes out of the state.—United States Supreme Court, 33 S. C. R., 157.

Regulating Size of Loaves of Bread.

Mathias Schmidinger, Plff. in Err., v. City of Chicago.—Fixing by municipal ordinance the weight of the standard loaf of bread to be sold in the city of Chicago at one pound, and prohibiting the making or selling of loaves which are not up to the weight of the standard loaf, or of a specified fractional part or multiple of such loaf, though it may produce some inconvenience, is not such an unreasonable and arbitrary exercise of the police power as to render the ordinance void under U. S. Const. 14th Amend., prohibiting the taking of property without due process of law.—United States Supreme Court, 33 S. C. R., 182.

Trading Stamps—Ordinance—Validity.

McCormack Bros. Co. v. City of Tacoma, Wash., et al.—Plaintiff corporation sued to set aside an alleged unconstitutional city ordinance imposing a license tax on trading stamp users, alleging that complainant had a contract with the furnisher of such stamps to use the same, that the ordinance had been declared void by the federal Circuit Court of the district as in violation of the federal Constitution, but that the Supreme Court of the state had held it valid, whereby it was useless for complainant to defend or prosecute an action in a state court, or pay the license, and sue to recover the same, for which reason plaintiff had no remedy at law or in equity in the courts of the state, that the city officials had threatened that, unless plaintiff paid the tax under the ordinance, its officers would be arrested, and that the ordinance impaired the obligation of plaintiff's contract, deprived it of its liberty of contract and of its liberty and property without due process of law, and denied plaintiff the equal protection of law. Held that, since the constitutionality of the ordinance could be finally determined by the United States Supreme Court in proceedings to review a conviction for violation of the ordinance in the state courts, the bill did not state a cause of action for relief in equity.—United States District Court, 201 F. R., 374.

Street Railroad Franchise—Construction.

Belt Line Ry. Co. v. City of Montgomery et al.—A city enacted an ordinance granting a franchise to certain individuals to construct and operate a street railroad for a term of 20 years. A few months later an amendatory ordinance was passed granting a similar franchise to a corporation which succeeded to the rights of the individuals and providing that all provisions of the original ordinance not contained therein were repealed. This ordinance contained no provision as to the duration of the franchise. Subsequently a third ordinance was passed amending the second by reciting that the corporation named therein was the successor and assignee of the persons named in the original grant, and that it was the intention thereby to confer upon it all of the rights and privileges granted to them by the first ordinance. Subsequently other ordinances were enacted from time to time granting additional privileges to the company, extending its franchise to other streets, etc., expressly subject to the terms and conditions of the first two ordinances. All of said ordinances were accepted in writing by the grantees. Held, that the limitation of the term of the franchise to 20 years contained in the original grant was not repealed by the second ordinance; it being at least doubtful whether such repeal was intended.—United States District Court, 201 F. R., 411.

Annexation of Territory—Constitutional Provision.

Landess et al. v. City of Cottage Grove et al.—Const. as amended grants to the legal voters of each city and town power to enact and amend their municipal charters subject to the Constitution and the criminal laws. The council of a city duly called a special election on the proposition of an amendment to the charter enlarging the city boundaries, but the question of annexation was not separately submitted to the voters within the city and those outside, but their votes were mixed so that it could not be determined whether the voters without the city approved annexation or not. Held, that the constitutional power did not authorize the people of the city to annex territory without the approval of the legal voters residing within such territory, and that the vote was invalid.—Supreme Court of Oregon, 129 P. R., 537.

Salary of Officers—Deduction for Absence.

Reilly v. City of New York.—Under New York City Charter, providing that heads of departments may deduct from the salaries of subordinates for absence without leave, the commissioner of bridges had authority to deduct from the salary of an auditor of the department of bridges for time absent without leave or notice, though his absence was caused by sickness, especially where the sickness was not of such sudden or disabling character as to prevent the auditor's applying for leave or giving notice.—Municipal Court of City of New York, 139 N. Y. S., 718.

Ports as Municipal Corporations—Organization.

State ex rel. Watt v. Port of Bay City et al.—Where the petition for the organization of a port as a municipal corporation is in proper form, the notice of election properly given, the returns properly made, and the proclamation of the formation of the port duly and properly entered, the county court's finding that the port has been duly organized and incorporated and the entry of such finding in the journal is res judicata as to every fact necessary to constitute a valid corporation including the location of the boundaries, and persons wishing to contest the inclusion of land should appear in the county court and do so prior to such finding, and cannot do so thereafter by quo warranto.—Supreme Court of Oregon, 129 P. R., 496.

Land Reclamation—Void Contract.

Gantenbein et al. v. City of Pasco et al.—Where landowners under a reclamation project outside a city, by subscribing to a contract between the company and a city, were allowed six inches of water free, such contract is void as against public policy as being a source of litigation and because the city would have to pay for the six inches of water.—Supreme Court of Washington, 129 P. R., 374.

Contracts—Effect of Invalidity.

First Nat. Bank of Goodhue v. Village of Goodhue.—Where a bank in good faith loans money to a municipal corporation for a legitimate corporate purpose, and the money so loaned is paid into the municipal treasury and subsequently expended for the purpose stated, recovery may be had against the municipality for a return of the money, though the contract was void because the president of the municipal council was also a managing officer of the bank, and participated in the council proceedings by which the loan was authorized.—Supreme Court of Minnesota, 139 N. W. R., 599.

Illegal Warrants—Validity of Judgment.

Rankin v. City of Chariton et al.—Where a judgment on city warrants, part of which were invalid because issued in excess of the constitutional limit, was rendered pursuant to an agreement between the city and a receiver holding the warrants, and each acted in good faith with actual knowledge that the warrants were illegal, the judgment was valid, though both were warned of the illegality by a councilman, but without accurate or adequate information of such fact.—Supreme Court of Iowa, 139 N. W. R.,

Street Improvement Acceptance.

Hendry et al. v. City of Salem et al.—Where a city council accepts a street improvement, its decision that the improvement complies with the contract is in the absence of fraud, conclusive on the property owners.—Supreme Court of Oregon, 129 P. R., 531.

Water Rates—Reasonableness.

Feil v. City of Cœur D'Alene et al.—A water rate, sufficiently high to pay all running expenses and improvements and repairs of the system and 6 per cent. on the entire value of the plant and the purchase price therefor, in the period of 20 years, would be unreasonable, and it would be beyond the power and authority of the city to contract in advance to maintain water rentals at such a rate.—Supreme Court of Idaho, 129 P. R., 643.

Injuries—Defective Pavement—Barriers.

Maloney v. City of New York et al.—Where the condition of a part of a street next to a railroad track, from which the asphalt was removed for repaving, was obvious, the city was not reasonably bound to erect a barrier along the side of the track to prevent driving on that part of the street.—New York Supreme Court, 139 N. Y. S., 794.

Constitutional Law—Retroactive Legislation.

Swartz v. Borough of Carlisle.—The Legislature has power to legislate retrospectively on all matters not penal nor in violation of contracts, not expressly forbidden by the Constitution.—Supreme Court of Pennsylvania, 85 A. R., 847.

THE MUNICIPAL INDEX

In Which Are Listed and Classified by Subjects All Articles Treating of Municipal Topics Which Have Appeared During the Past Month in the Leading Periodicals.

It is our purpose to give in the second issue of each month a list of all articles of any length or importance which have appeared in all the American periodicals and the leading English, French and German ones, dealing more or less directly with municipal matters. The index is kept up to date, and the month of literature covered each time will be brought up to within two or three days of publication. Our chief object in this is to keep our readers in touch with all the current literature on municipal matters. In furtherance of this we will furnish any of the articles listed in the index for the price named after each article, except that where an article is continued in two or three issues of the paper, the price given is for each of said issues. In addition to the titles where these are not sufficiently descriptive or where the article is of sufficient importance, a brief statement of its contents is added. The length also is given, and the name of the author when it is a contributed article.

ROADS AND PAVEMENTS.

Highways from a Military Point of View. By Major Count De Bury. 2½ pp., Western Municipal News, March. 10 cts.

Roads in the Philippine Islands. Paper before Alabama Good Roads Association. By W. A. Crossland. Illustrated, 3 pp., Good Roads, March 1. 10 cts.

New Mountain Road Near Chattanooga, Tennessee. Illustrated, 1½ pp., Good Roads, March 1. 10 cts.

View Along the Rincon Sea Level Road in California. Illustrated, 1½ pp., Good Roads, March 1. 10 cts.

Park Drives and Boulevards. By Linn White. 7 pp., Municipal Engineering, February. 25 cts.

Management of Roads in Germany. 1½ pp., Surveyor, February 21. 40 cts. Organization of a State Highway Department. Paper before American Road Builders Association. By W. W. Crosby. 2 pp., Canadian Engineer, February 27. 15 cts.

Necessity of More Extensive Cooperation Between the Ohio State Stone Club and the State Highway Department. By J. R. Marker. ½ p., Rock Products, February 22. 10 cts.

Act, Highway Improvement. 1½ pp., Municipal World, February. 10 cts.

Test of Road Metal. By C. W. L. Alexander. 1½ pp., Surveyor, February 14. 40 cts.

Road Board Trial in Wandsworth and Fulham. 2½ pp., Surveyor, February 14. 40 cts.

Trials of Road Materials at Sidcup. 2 pp., Surveyor, February 7. 40 cts.

Selection of Paving Materials. ½ p., Municipal Journal, March 6. 10 cts.

Pavement and Traffic Preference. Census of traffic on heavily traveled road to determine choice of drivers between stone block and wood block. 1 p., Municipal Journal, March 6. 10 cts.

City Control of Roadway and Sidewalk Paving. ½ p., Municipal Journal, February 13. 10 cts.

Wheel Loads, Tyre Widths and. Paper before Institution of Municipal and County Engineers. By A. B. Collins. 1 p., Surveyor, February 14. 40 cts.

Some Conditions Affecting the Interaction of Motor Vehicle Wheels and Road Surfaces. Paper before American Association for the Advancement of Science. By L. I. Hughes. Illustrated, 1½ pp., Engineering & Contracting, February 26. 10 cts.

Traffic on Warwickshire Roads. Illustrated, 1½ pp., Surveyor, February 7. 40 cts.

City Traffic Census as Conducted by Bureau of Highways, Borough of Brooklyn, New York City. Illustrated, 1½ pp., Engineering & Contracting, February 26. 10 cts.

Bituminous Materials; Their Use and Misuse. Paper before Michigan Engineering Society. By C. S. Reeves. 1½ pp., Engineering & Contracting, February 12. 10 cts.

Bituminous Materials for Road Construction. Progress report of special committee of American Society of Civil Engineers. 3 pp., Proceedings American Society of Civil Engineers, February. \$1.

Fixed Carbon in Bituminous Materials. Its Determination and Value in Specifications. Paper before American Association for the Advancement of Science. By L. Kirschbraun. 2½ pp., Engineering & Contracting, February 12. 10 cts.

Determining the Consistency of Bituminous Materials. From paper before American Association for the Advancement of Science. By W. W. Crosby. 1 p., Engineering Record, February 15. 10 cts.

Bituminous Gravel Concrete Pavements. Characteristics of gravel; low

cost of construction and other advantages. Illustrated, 1¾ pp., Municipal Journal, February 27; illustrated, 1¾ pp., March 6. 10 cts.

Asphaltic Concrete and Sheet Asphalt Pavements. Specifications adopted by Vancouver, B. C. 2½ pp., Canadian Engineer, February 20. 15 cts.

Bituminous Carpet Surfaces. Serviceability depends upon road crust, carpet itself and character of traffic. Paper before American Association for the Advancement of Science. By A. W. Dean. 1½ pp., Municipal Journal, March 6. 10 cts. 1 p., Engineering & Contracting, February 19. 10 cts.

Bituminous Concrete Paving in Annapolis, Maryland. By J. B. Logan. Illustrated, 1½ pp., Good Roads, March 1. 10 cts.

Surfacing of a Tarvia Road in St. Thomas, Ont. ½ p., Canadian Engineer, February 20. 15 cts.

Tar Macadam Construction by the Board of Public Works of Rhode Island in 1912. By H. C. Poor. Illustrated, 2 pp., Engineering & Contracting, February 26. 10 cts.

Oil Macadam Pavement as Laid at Grants Pass, Oregon. 1 p., Municipal Journal, March 6. 10 cts.

Storing Road Oil. Permits choosing best time for applying, and eliminates demurrage and other costs. Description of tanks recommended. Illustrated, 1½ pp., Municipal Journal, March 6. 10 cts.

Municipal Plants for the Storage of Road Oil. Paper before American Association for the Advancement of Science. By W. H. Kershaw. 3 pp., Good Roads, March 1. 10 cts.

Plant for Road Building. Paper before American Road Builders' Association. By F. E. Ellis. 1½ pp., Contractor, February 1. 20 cts.

Modern Road-Making Machinery and Its Use. Paper before Illinois Society of Engineers and Surveyors. By T. R. Agg. 2 pp., Engineering News, February 13. 15 cts.

Road Building Machine. Illustrated, ½ p., Municipal Journal, February 13. 10 cts.

Breaking up a Pavement Foundation. ¼ p., Municipal Journal, February 20. 10 cts.

Convict Labor on Roads. By J. H. Rivers. 3 pp., Western Municipal News, March. 10 cts.

Culverts and Bridges, Curves for Determining Areas of Opening for Road. 1 p., Engineering & Contracting, March 5. 10 cts.

Street Paving in Trenton. Open specifications and all materials tested. By H. C. Hottel. 1 p., Municipal Journal, February 20. 10 cts.

Paving Conditions in Southern Cities. Illustrated, 6 pp., Municipal Engineering, February. 25 cts.

London Street Paving. Metropolitan Committee's Tenth Annual Report. 3 pp., Surveyor, February 21. 40 cts.

Unjust Condemnation of Pavements. ¼ p., Municipal Journal, March 6. 10 cts.

Paving Work in 1912. From figures furnished by officials during the past four weeks. Amount of each kind of roadway and sidewalk paving laid in 1912 and contemplated for 1913. 16½ pp., Municipal Journal, March 6. 10 cts.

Cost Data on Street Paving. From paper before Illinois Society of Engineers and Surveyors. By W. W. Kirch. ½ p., Engineering Record, March 1. 10 cts. ½ p., Engineering & Contracting, February 12. 10 cts.

Payment for Street Paving. 1¼ p., Municipal Journal, March 6. 10 cts.

Contracts, Bunching Paving. ¼ p., Municipal Journal, February 20. 10 cts.

Test Pavements on Second Avenue, in the Borough of Manhattan, New York City. By H. W. Durham. 1½ pp., Good Roads, March 1. 10 cts.

Mile of Test Pavements on Second Avenue, New York. By H. W. Durham. 1 p., Engineering Record, February 22. 10 cts. 1 p., Engineering & Contracting, February 19. 10 cts.

Brick-Paved Highways in Northern New York. Illustrated, 4 pp., Good Roads, March 1. 10 cts.

Prevention of Defects in Brick Pavements. Illustrated, 6 pp., Municipal Engineering, February. 25 cts.

Uniformity of Paving Brick. Communication from M. W. Blair, and comments thereon. 1½ pp., Municipal Journal, February 20. 10 cts.

Uniformity of Paving Brick. Communication from W. G. Buckles, and comments thereon. 1½ pp., Municipal Journal, February 13. 10 cts.

Brick Paved Country Road Construction in New York State. Paper before American Association for the Advancement of Science. By W. C. Perkins. Illustrated, 2 pp., Engineering & Contracting, February 12. 10 cts. Illustrated, 8 pp., Municipal Engineering, February. 25 cts.

Sand vs. Concrete Foundations for Brick Pavements. Relative economy as calculated from experiences in Cleveland. Concrete generally the more economical and effective. From paper before American Assn. for the Advancement of Science. By Robert Hoffman. Illustrated, 3 pp., Municipal Journal, March 6. 10 cts. Illustrated, 1½ pp., Engineering & Contracting, February 26. 10 cts.

Wood Block Paving. ¼ p., Municipal Journal, March 6. 10 cts.

Use of Yellow Pine in Creosoted Wood Block Pavements. Paper before American Wood Preservers' Association. By H. L. Collier. 3½ pp., Canadian Engineer, February 6. 15 cts.

Laying Wood Block Pavements. From paper before American Wood Preservers' Association. By H. L. Collier. ¼ p., Municipal Journal, March 6. 10 cts.

Merits of Different Woods for Street Paving. Paper before American Wood Preservers' Association. By H. G. Davis. ¾ p., Engineering News, February 13. 15 cts.

Asphalt Block in a Suburban Town. Street and Railway Track Paving with. Paper before Canadian Society of Civil Engineers. By Frank Chappell. 2½ pp., Canadian Engineer, February 20. 15 cts. Illustrated, 1½ pp., Engineering & Contracting, March 5. 10 cts.

Bituminous Surfaces on Brick Pavements. From paper before American Association for the Advancement of Science. By E. R. Dutton. ½ p., Engineering Record, February 15. 10 cts. ½ p., Engineering & Contracting, February 19. 10 cts. ½ p., Municipal Journal, March 6. 10 cts.

Bitumen-Surfaced Concrete Pavement. ½ p., Municipal Journal, March 6. 10 cts.

Asphalt Pavements, Repairing. ½ p., Municipal Journal, March 6. 10 cts.

Oklahoma Rock Asphalts and Their Use in Paving. By L. C. Snider. Illustrated, 3 pp., Good Roads, March 1. 10 cts.

Denver Municipal Asphalt Plant. ¼ p., Municipal Journal, March 6. 10 cts.

Dayton Asphalt Repair Plant. Illustrated, 4 pp., Municipal Engineering, February. 25 cts.

Proposed Municipal Asphalt Plants for Washington, D. C. Estimates of Cost. 4½ pp., Engineering & Contracting, March 5. 10 cts.

Concrete Pavements. Paper before Iowa Association of Cement Users. By F. T. Wilson. 1 p., Cement Era, February. 10 cts.

Concrete Paving Between Car Tracks in Birmingham. Illustrated, ½ p., Engineering Record, March 1. 10 cts.

Concrete Pavement Maintenance. ½ p., Municipal Journal, February 20. 10 cts.

Repairing Cement-Concrete Pavements. Paper before American Association for the Advancement of Science. By F. P. Rogers. 2 pp., Municipal Journal, February 20. 10 cts. 1 p., Concrete-Cement Age, February. 15 cts.

Concrete Road Building in Wayne County, Michigan. Illustrated, 3 pp., Good Roads, March 1. 10 cts.

Investigation of Concrete Pavement in Chicago. Illustrated, 3½ pp., Engineering News, February 27. 15 cts.

"Vibrolithic" Concrete Pavement. Paper before National Association of Cement Users. By R. C. Stubbs. Illustrated, 1 p., Concrete-Cement Age, February. 15 cts.

Street Work in Kansas City. ½ p., Municipal Journal, February 27. 10 cts.

Paving by Day Labor in Louisville. Legal limitations, costs; advantages and disadvantages as compared with contract work. By G. D. Crain, Jr. 1½ pp., Municipal Journal, February 27. 10 cts.

Maintenance Treatment of Smooth Pavements in St. Louis. By W. L. Hempelmann. Paper before Illinois Society of Engineers and Surveyors. By W. L. Hempelmann. 1 p., Engineering News, February 20. 15 cts.

Street Maintenance Costs. Discussion of increase of cost with age of pavement; some data from Trenton. By J. E. English. 1½ pp., Municipal Journal, March 6. 10 cts.

First Cost vs. Cost of Pavement Maintenance. Paper before League of Washington Municipalities. By J. H. Dimmock. 2 pp., Pacific Builder & Engineer, January 25. 15 cts.

Grade-Crossing Elimination, The City's Side of. Paper before Cleveland Engineering Society. By Robert Hoffman. ½ p., Engineering News, February 20. 15 cts.

Railway Bridges or Track Elevation. Paper before Cleveland Engineering Society. By G. H. Tinker. 1 p., Engineering News, February 20. 15 cts.

Gilbert Avenue Viaduct in Cincinnati. Illustrated, 2 pp., Engineering Record, March 1. 10 cts.

A Footway Tunnel in New York City. ½ p., Engineering News, March 6. 15 cts.

SEWERAGE AND SANITATION.

Sewerage System, Rehabilitation of Hoboken. Proposed Gravity System on Flat Grades Flushed Automatically with Tide Water. Illustrated, 1½ pp., Engineering Record, February 22. 10 cts.

Linthwaite and Golcar Sewage Scheme. Illustrated, 2 pp., Surveyor, January 31. 40 cts.

Storm Water Discharge. By R. O. Wynne-Roberts and T. Brockman. Illustrated, 2½ pp., Canadian Engineer, February 27; Illustrated, 2 pp., February 20; 2 pp., February 13. 15 cts.

Construction, Trenching, Jointing Pipe and Handling Concrete Work in Cold Weather, Practical Hints on Sewer. By W. W. Brigen. Illustrated, 1½ pp., Engineering Record, March 1. 10 cts.

Trench Bottom Raised by the Load of Excavated Material on the Banks. Illustrated, ½ p., Engineering News, February 20. 15 cts.

Spokane Builds Sewer by City Labor. Illustrated, ½ p., Municipal Journal, February 13. 10 cts.

Pipe, Specifications for Drain Tile and Sewer. Committee Report of Iowa State Drainage Association. 1½ pp., Engineering Record, March 1. 10 cts.

Pumping Plant in Kansas City, Sewage. By O. L. Eltinge. Illustrated, 1 p., Engineering Record, February 22. 10 cts.

Purification Sewage, In the East, Coral as a filtering material. By B. Ball. Illustrated, 2½ pp., Surveyor, January 31. 40 cts.

Facts and Fancies about Sewage Disposal. Paper before Sanitary Association of Scotland. By Gilbert Thompson. 4½ pp., Canadian Engineer, February 20. 15 cts.

Sewage Disposal Plant at the Great Lakes Naval Training Station. Illustrated, 1½ pp., Engineering Record, February 22. 10 cts.

Design and Operation of the Institutional Sewage Treatment Plant at Julietta, Indiana. Paper before Indiana Sanitary and Water Supply Association. By Charles Brossman. Illustrated, 2 pp., Engineering & Contracting, February 26. 10 cts.

Scientific Research in the Field of Sewage Purification. Paper before Institute of Sanitary Engineers. By A. J. Martin. 1¼ pp., Surveyor, February 21. 40 cts.

Municipal Plants for Electrolytic Sewage Purification. By C. L. Edholm. Illustrated, 2½ pp., Municipal Engineering, February. 25 cts.

Sewage Disposal Notes. ¼ p., Municipal Journal, February 20. 10 cts.

Sewage Disposal Investigations at Cleveland. By R. W. Pratt. Illustrated, 7½ pp., Engineering News, February 13. 15 cts.

Sludge Disposal. By Karl Imhoff. Paper before International Congress on Hygiene and Demography. 1½ pp., Canadian Engineer, February 27. 15 cts.

Cost and Efficiency Comparison of Sewage Treatment and Water Purification for Duluth, Minn. Papers before Minnesota Surveyors and Engineers Society. By John Wilson. ½ p., Engineering & Contracting, February 26. 10 cts.

River Pollution, Sewage Effluents and. By Samuel Rideal. 1 p., Local Government Journal, February 15. 10 cts.

Sewage Pollution of Lake Michigan from the Calumet District. ½ p., Engineering News, March 6. 15 cts.

Studies of Fish Life and Water Pollution. Paper before International Congress of Applied Chemistry. By H. W. Clark and G. O. Adams. 2½ pp., Engineering News, February 13. 15 cts.

British Standard for Sewage Effluents. By W. L. Butcher. 1 p., Engineering News, February 27. 15 cts.

Sanitation of Cities. By J. D. Glasgow. 6½ pp., American Municipalities, February. 25 cts.

Ordinances, Municipal, Rules and Regulations, Pertaining to Public Health. 4 pp., Public Health Reports, February 7. 5 pp., February 14; 6 pp., February 21.

State Laws and Regulations Pertaining to Public Health. 5 pp., Public Health Reports, February 7; 6 pp., February 14; 3 pp., February 21.

Typhoid Fever. Report of an outbreak at Fort Dodge, Iowa. By P. M. Carrington. 10 pp., Public Health Reports, February 14.

Reduction in Typhoid Fever Rates Resulting from Improved Water Supplies. 2 pp., Bulletin New York State Department of Health, January.

Milk and Cream, New Method of Grading. By W. C. Woodward. 8 pp., Public Health Reports, February 21.

WATER SUPPLY.

Water Supplies, Municipal. By M. J. Gilbert. Illustrated, 5 pp., Technique Sanitaire, February. 50 cts.

Economic Advantages of Methods Available for the Hygienic Protection of Water Supplies Taken from the Great Lakes. Paper before Engineers Club of Philadelphia. By G. C. Whipple. 2½ pp., Engineering & Contracting, February 19. 10 cts.

Problems of Water Supply and Sewerage. By W. M. Edwards. 3 pp., Contract Record, February 12. 15 cts.

Reflections, Old and New, on the Condition of Surface-Water Supply System. By W. Dunbar. 5 pp., Journal of State Medicine, February. 60 cts.

Reservoir, Five-Million Gallon. By F. C. Perkins. 1 p., Municipal Engineering, February. 25 cts.

Design for Increasing Depth of Brick Reservoir by Means of Reinforced Concrete, and Design of New Circular, Open, Reinforced Concrete Reservoir for Sioux City, Iowa. Illustrated, 1½ pp., Engineering & Contracting, February 12. 10 cts.

Design of the Ventilators of the New Water Works Reservoir at Baton Rouge, La. Illustrated, ¼ p., Engineering & Contracting, February 12. 10 cts.

Covered Concrete Reservoir at Lowell. Distributing basin with groined arch vaulting supported by tall piers; sheet lead expansion joint used in the side walls. Illustrated, 1½ pp., Engineering Record, February 15. 10 cts.

Construction of the Kensico Reservoir. Illustrated, 4 pp., Contractor, February 15. 20 cts.

Dam, Hydraulic Fill, for Additional Water Supply of Cambria Steel Works. Illustrated, 4 pp., Engineering Record, February 15. 10 cts.

Well, Connecting a Shallow Well to a Deep, with Dynamite. ½ p., Engineering Record, February 15. 10 cts.

Tunnel, Construction of Santa Barbara Water. Illustrated, 1 p., Contractor, February 1. 20 cts.

Los Angeles Water Supply Siphon Across Mountains. Illustrated, ¾ p., Fire & Water, February 26. 10 cts.

Standpipes, Construction of Water. By L. J. Mensch. 1½ pp., Fire & Water, February 12. 10 cts.

Large Reinforced-Concrete Elevated Tank. By L. J. Mensch. Illustrated, 1

p., Engineering News, February 13. 15 cts.

Large Reinforced Concrete Standpipe at Penetanguishene. Illustrated, 1 p., Canadian Engineer, February 20. 15 cts.

Pipe, New Intake, Ottawa, Ont. By L. M. Hunter. Illustrated, ½ p., Canadian Engineer, February 6. 15 cts.

Pitting of Steel Water Pipe Due to Mill Scale. Paper before International Congress of Applied Chemistry. By M. C. Whipple. ½ p., Engineering & Contracting, February 12. 10 cts.

Systems, Danger of Physical Cross Connections Between Public and Private Water Supply. A suggested mechanical safeguard. ¾ p., Engineering & Contracting, March 5. 10 cts.

Purification, Modern Methods of Water. Paper before Institute of Municipal and County Engineers. By J. C. Fresh. 3½ pp., Surveyor, February 14. 40 cts.

Results of Double Filtration at Steelton during 1913. ½ p., Engineering Record, February 22. 10 cts.

Filtration Plant at the Great Lakes Naval Training Station. Illustrated, 1½ pp., Engineering Record, February 22. 10 cts.

Increasing Efficiency of Small Waterworks and Sewage Treatment Plants. Paper before Illinois Society of Engineers and Surveyors. By Paul Hansen. 1½ pp., Engineering Record, February 15. 10 cts.

Rapid Water Filtration Plant at Columbus, Indiana. 1½ pp., Engineering & Contracting, March 5. 10 cts.

Applying Hypochlorite to the Water Supply at Cleveland, Ohio. Report to Ohio State Board of Health. By L. H. Van Buskirk. ¾ p., Engineering & Contracting, February 19. 10 cts.

Chlorinating Plants, Croton Water Supply. By T. D. L. Coffin. Illustrated, 4 pp., Engineering News, February 27. 15 cts.

Preventing Aftergrowths in Hypochlorite Treatment. By R. Freas. Illustrated, ¾ p., Engineering Record, March 1. 10 cts.

Analyses, Interpretation of Water. By Jerome Cochran. 27 pp., Cornell Civil Engineer, February. 25 cts.

Standards for the Hygienic Purity of Public Water Supplies. Paper before Indiana Sanitary and Water Supply Association. By J. W. Ellms. ¾ p., Engineering & Contracting, March 5. 10 cts.

Hydrology, A Neglected Study in Hydraulic Engineering. By D. W. Mead. 4 pp., Cornell Civil Engineer, February. 25 cts.

Weir Discharge, Experiments on. By W. G. Steward and J. S. Longwell. 27 pp., Proceedings American Society of Civil Engineers, February. \$1.

Experiments on Flow of Water over Model Dams. Illustrated, 1 p., Engineering Record, February 15. 10 cts.

Frozen Water Pipes, Electrical Device for Thawing out. By C. P. Hoover. Illustrated, 1 p., Engineering Record, February 22. 10 cts.

Suggested System of Water Works Accounting. Paper before Indiana Sanitary and Water Supply Association. By G. F. Olive. 1½ pp., Engineering & Contracting, March 5. 10 cts.

Water Department Methods of Pleasing the Public. Paper before New England Water Works Association. By G. W. Batchelder. ½ p., Engineering Record, February 22. 10 cts.

STREET LIGHTING AND POWER PLANTS.

Street Lighting Data. Some Additional Figures. 1 p., Municipal Journal, February 27. 10 cts.

Plant at Crawfordsville, Indiana, Municipal Lighting. Illustrated, 7½ pp., Municipal Engineering, February. 25 cts.

Interesting Design of Alternating Current Switchboard. 2½ pp., Electrical Review, March 1. 10 cts.

Central Stations, Training Schools for Small. By S. W. Ashe. 1½ pp., General Electric Review, March. 20 cts.

Standards in Sycamore, Light. Illustrated, ½ p., Municipal Journal, February 27. 10 cts.

Lines, Effect of Sleet Storm on Distributing, at Rochester, N. Y. Illustrated, 1 p., Electrical World, February 22. 10 cts.

Illuminants, Color of Artificial. By J. S. Dow. 1½ pp., American Gas Light Journal, March 3. 10 cts.

Meters, Consumers; Report of the Committee to American Gas Institute. 4½ pp., American Gas Light Journal, March 3. 10 cts.

Hydro-electric Development at Keokuk, Iowa. Paper before Iowa Association of Cement Users. By J. E. Griffith. 1 p., Cement Era, February. 10 cts.

Municipal Hydro-electric Development at Magog. By A. C. Dorothy. Illustrated, 2 pp., Canadian Engineer, February 13. 15 cts.

Deerfield River Hydro-electric Development. By W. O. Rogers. Illustrated, 6 pp., Power, February 25. 5 cts.

Power Developments on the Deerfield River, Massachusetts. Illustrated, 4 pp., Engineering Record, February 15. 10 cts.

Generation and Transmission of Hydro-electric Power. Cabling and wiring. By E. A. Lof. Illustrated, 18 pp., Engineering Magazine, March. 25 cts.

Internal Combustion Engine, Suitability of, for Service in Small Water Works Plants. By G. A. Main. ½ p., Engineering & Contracting, March 5. 10 cts.

Classification of Oil Engines. By O. P. Ostergren. Illustrated, 3 pp., Power, February 11. 5 cts.

Steam Turbines, Field for Small. By W. A. J. London and A. P. Peck. 3 pp., Power, February 18. 5 cts.

Coal Analysis, Accuracy and Limitations of. By H. C. Fieldman. 15 pp., Chemical Engineer, February. 25 cts.

Management in Power Plant Operation, Scientific. By T. R. Moses. Illustrated, 10 pp., Engineering Magazine, March. 25 cts.

FIRE DEPARTMENT.

Fire Apparatus in American Cities. Some Additional Figures. 1½ pp., Municipal Journal, February 20. 10 cts.

Handling Fires in the Army. By Monroe Wooley. 4 pp., Insurance Engineering, January. 25 cts.

Fire Hazard at Savannah, Ga. Report of the National Board of Fire Underwriters. 1½ pp., Fire & Water, February 19. 10 cts.

Conflagration Hazard at Worcester, Mass. Report of National Board of Fire Underwriters. 3 pp., Fireman's Herald, February 8. 25 cts.

Dangers of Motion Picture Theatres. 25 pp., Insurance Engineering, January. 25 cts.

Fire Prevention Progress in 1912. By F. H. Wentworth. 1½ pp., Insurance Engineering, January. 25 cts.

Insurance, Municipal Fire. ¼ p., Municipal Journal, February 27. 10 cts.

Wharf Fire at Savannah. Illustrated, ½ p., Fire & Water, February 22. 10 cts.

STREET CLEANING AND WASTE DISPOSAL.

Street Cleaning Efficiency Standards for Chicago. By F. H. Cienfield and A. B. Segur. Illustrated, 3 pp., Engineering News, February 27. 15 cts.

Street Cleaning Department of Winnipeg. By W. F. Tallman. 1 p., Western Municipal News, March. 10 cts.

Street Cleaning in Baltimore. ¼ p., Municipal Journal, February 27. 10 cts.

Street Cleaning Costs at Spokane, Wash., in 1912. By S. A. Levington. 1 p., Engineering News, February 27. 15 cts.

Denver Street Cleaning Department. Vehicles employed, division of force, sprinkling, cleaning, sidewalk flushing, rubbish cans, removing snow, cutting weeds. Illustrated, 1½ pp., Municipal Journal, February 13. 10 cts.

Dust Laying in New Bedford. ¼ p., Municipal Journal, March 6. 10 cts.

Dust Laying in Boston. ¾ p., Municipal Journal, March 6. 10 cts.

Cost of Street Sprinkling and Oiling at Boston, Mass. ½ p., Engineering & Contracting, February 19. 10 cts.

Waste Disposal in Spokane. Combustible waste destroyed by incinerator, department is self-supporting. By A. P. Peterson, Supt., Crematory Division. 1½ pp., Municipal Journal, February 13. 10 cts.

Waste Disposal in Vancouver. ¼ p., Municipal Journal, February 20. 10 cts.

Garbage Disposal in Smaller Cities. Paper before Illinois Society of Engineers and Surveyors. By S. A. Greeley. 2 pp., Engineering & Contracting, February 12. 10 cts.

Garbage Disposal in Medium Sized Cities. 1 p., Engineering Record, February 15. 10 cts.

Destructor, San Francisco Garbage. Illustrated, ½ p., Municipal Journal, February 20. 10 cts.

Features of Modern Refuse Destructor Practice in Great Britain. By J. A. Seager. 1½ pp., Engineering & Contracting, February 12. 10 cts.

New Garbage Incinerator at Moose Jaw. Illustrated, 3 pp., Canadian Municipal Journal, February. 15 cts.

Two Refuse Incineration Plants. At

Duluth, Minnesota, and Rankin, Pa. Fuels used and operating costs. ½ p., Municipal Journal, February 27. 10 cts.

STRUCTURES AND MATERIALS.

Cement Industry on the Pacific Coast. Paper before Pacific Northwest Society of Engineers. By C. A. Newhall. Illustrated, 3 pp., Pacific Builder & Engineer, March 1. 15 cts.

International Cement Question from a French Viewpoint. 1 p., Engineering News, February 13. 15 cts.

Constitution of Portland Cement. Paper before National Association of Cement Users. By E. H. Bates. 3 pp., Cement and Engineering News, February. 10 cts.

Concrete and Reinforced Concrete. Progress Report of Special Committee of American Society of Civil Engineers. 50 pp., Proceedings American Society of Civil Engineers, February. \$1.

Effect of Electric Currents on Concrete. Paper before National Association of Cement Users. By A. B. Rosa. 1½ pp., Electrical Review, February 22. 10 cts.

Settlement of Solids in Water and Its Bearing on Concrete Work. Paper before Concrete Institute. By J. S. Owens. 2 pp., Surveyor, February 7. 40 cts.

Gravel, Selecting Samples for Testing. By A. L. Anderson. 1 p., Cement Era, February. 10 cts.

Timber Treatment, Requirements for Successful. Paper before American Wood Preservers' Association. By Hermann Von Schrenk. 1 p., Canadian Engineer, February 13. 15 cts.

Nomenclature of Creosote and Creosoting Oils. Paper before American Wood Preservers' Association. By D. Allerton. 2 pp., Oildom, December. 10 cts.

Piles, Some Experiences with Concrete, in Chicago. By J. N. Jensen. 2 pp., Engineering News, February 27. 15 cts.

Tile, Standard Specifications for Drainage. Committee report to Iowa State Drainage Association. ½ p., Engineering News, March 6. 15 cts.

Cement Tile, Reinforced for Large Sizes and Unusual Depths. Paper before Interstate Cement Tile Manufacturers Association. By C. F. Sims. 2½ pp., Cement Era, February. 10 cts.

Bridge, Sewickley Cantilever. Illustrated, 77 pp., Engineering News, February 27. 15 cts.

Patented Concrete Bridges. Paper before American Society of Engineering Contractors. By D. B. Luten. Illustrated, 5 pp., Cement and Engineering News, February. 10 cts.

Concrete Highway Bridge at Ansonia, Conn. 1½ pp., Engineering Record, February 22. 10 cts.

Constructing a Flat Slab Reinforced Concrete Highway Bridge. By E. W. Robinson. Illustrated, 2 pp., Engineering & Contracting, March 5. 10 cts.

An Artistic Stone Arch. By H. B. Seamon. Illustrated, 3½ pp., Municipal Engineering, February. 25 cts.

Fifth Street Viaduct, Fitchburg, Mass. Illustrated, 5 pp., Engineering, March 6. 15 cts.

Simple Practical Method for Determining the Stresses in a Hingeless Elastic Arch. Illustrated, 3½ pp., Engineering & Contracting, March 5. 10 cts.

Tacoma Lift Bridge. By J. O. Bashford. Illustrated, ½ p., Municipal Journal, February 20. 10 cts.

Tunneling, Elimination of Timbering in Rock; A Proposal. By J. F. O'Rourke. Illustrated, 1½ pp., Engineering News, February 13. 15 cts.

Foundations for Columns and Walls, Proportioning of. By Ernest McCullough. 2 pp., Engineering News, March 6. 15 cts.

Bearing Power of Soil Under Foundation in Chicago. 2 pp., Engineering News, March 6. 15 cts.

Wall, Street Retaining. ½ p., Municipal Journal, February 20. 10 cts.

Municipal Quay Wall, Oakland, Cal. By T. E. Risley. Illustrated, 2½ pp., Engineering News, February 13. 15 cts.

Embankments, Methods of Constructing. By D. J. Hauer. 2 pp., Contractor, February 15. 20 cts.

MISCELLANEOUS.

Municipal Work in 1912 and 1913. Some additional figures. 1½ pp., Municipal Journal, February 13. 10 cts.

Review of Municipal Engineering in 1912. 40 pp., Surveyor, January 31. 40 cts.

Municipal Improvement of Calgary. Illustrated, 8 pp., Contract Record, February 12. 15 cts.

Project for Regrading Rincon Hill, San Francisco. 1¼ pp., Engineering News, February 27. 15 cts.

Cities, Satellite, Gary. By G. R. Taylor. Illustrated. 13 pp., Survey, March 1. 25 cts.

Where will City Growth Stop? 1 p., Engineering News, February 27. 15 cts.

Government, Progress of Commission Plan of City in 1912. ½ p., Engineering News, February 13. 15 cts.

Public Utility Statistics. By J. F. Ford. 12 pp., American Municipalities, February. 25 cts.

Public Policies and Public Utilities. By O. T. Crosby. 3½ pp., Public Service, February. 20 cts.

Valuation of Public Service Properties. By L. R. Nash. 2 pp., Public Service, February. 20 cts.

Home Rule on Public Utilities. By W. J. Hindley and G. F. Cotterill. 4 pp., Pacific Builder & Engineer, January 25. 15 cts.

Franchises, Great Problem of the Day. Address before Cincinnati City Club. By J. H. Wilcox. 1 p., Citizen's Bulletin, March 1. 5 cts.

Records, Municipal. ½ p., Municipal Journal, March 6. 10 cts.

City Planning. Report of Committee to American Institute of Architects. ½ p., Engineering News, February 27. 15 cts.

Prize Plan for Reclaiming Land. ¼ p., Municipal Journal, February 13. 10 cts.

Markets, Municipal. By C. C. C. Miller. 4 pp., City Club Bulletin, February 17.

Bath Water, Purification of Swimming. Royal Sanitary Institute Committee's Report. 1 p., Surveyor, February 7. 40 cts.

Smoke, Regulating, on River Steamboats within City Limits. 1 p., Engineering Record, March 1. 10 cts.

Precipitation of Smoke and Suspended Dust by Electrostatic Methods. By H. N. Holmes. Illustrated, 1 p., Electrical World, February 22. 10 cts.

Cables, Construction of Underground Pipe Lines for Electric. By F. H. Davies. 2 pp., Electrical Review, February 15. 10 cts.

Movable Bridges, Floors for. By H. G. Tyrell. 2 pp., Engineering & Contracting, February 19. 10 cts.

Automobile Design, Tendencies in. ¼ p., Municipal Journal, February 13. 10 cts.

Gasolene Wagon Specifications. Tabulated Data. 38 pp., Power Wagon, February 1. 25 cts.

Tests of Efficiency of Motor Trucks with Trailers. Illustrated, 4 pp., Engineering & Contracting, February 19. 10 cts.

Horses, Some Observations and Experiments on the Tractive Power of. 1 p., Engineering & Contracting, February 19. 10 cts.

Railway Terminals in Large Cities and the Latest Chicago Terminal Project. 2 pp., Engineering News, February 27. 15 cts.

Electrification of Steam Railroads. Proposal for large central station in New York City. Illustrated, 3 pp., Public Service, February. 20 cts.

Recent Derailments on the Chicago Elevated Loop. 1¼ pp., Engineering News, February 20. 15 cts.

Grades, Building, as Given by the City of Edmonton. By C. C. Sutherland. 1 p., Canadian Engineer, February 27. 15 cts.

City Forces, Doing Work by. ¼ p., Municipal Journal, February 27. 10 cts.

Engineer, Reminiscences of a Municipal. Paper before Institute of Sanitary Engineers. By Cuthbert Brown. 3 pp., Surveyor, February 7. 40 cts.

Filling Systems for Contractors. By D. J. Hauer. 2 pp., Contractor, February 1. 20 cts.

Society of Civil Engineers, Report of the Twenty-Seventh Annual Meeting of the Canadian. 4 pp., Canadian Engineer, February 6. 15 cts.

Address of the Retiring President of the Canadian Society of Civil Engineers. By W. F. Tye. 2½ pp., Canadian Engineer, February 6. 15 cts.

Newspaper, Municipal Daily, in Dresden, Germany. ¼ p., Municipal Journal, March 5. 10 cts.

Improving the Character of Technical Papers. ½ p., Engineering Record, March 1. 10 cts.

Budget Estimate, Classified Salary and Wage, of Chicago, for 1913. ¾ p., Engineering News, February 27. 15 cts.

Workmen's Compensation. Proposed plans for. 2 pp., Bulletin, General Contractors Association, February. 10 cts.

Motion Picture Shows, Civic Control of. By H. S. Wynkoop. 2 pp., Insurance Engineering, January. 25 cts.

NEWS OF THE SOCIETIES

Calendar of Meetings.

March 19.

BOSTON SOCIETY OF CIVIL ENGINEERS.—Annual Meeting, Boston, Mass. S. E. Tinkham, Secretary, 715 Tremont Temple, Boston, Mass.

March 25-28.

AMERICAN CHEMICAL SOCIETY. Annual Meeting, Milwaukee, Wis. C. L. Parsons, Secretary, Box 505, Washington, D. C.

March 26-27.

NATIONAL FIRE PROTECTION ASSOCIATION. Annual Meeting, New York City. Ralph Sweetland, 141 Milk street, Boston, Mass.

March 27.

NEW ENGLAND STREET RAILWAY CLUB. Annual Meeting, Boston, Mass. H. A. Faulkner, Secretary, 12 Pearl street, Boston, Mass.

April 3-5.

AMERICAN ELECTRO-CHEMICAL SOCIETY. Annual Meeting, Atlantic City, N. J. J. W. Richards, Secretary, South Bethlehem, Pa.

April 15-16.

TRI-STATE WATER AND LIGHT ASSOCIATION OF THE CAROLINAS AND GEORGIA.—Annual Convention, Charlotte, N. C. J. W. Neave, Secretary, Salisbury, N. C.

April 18.

UTAH SOCIETY OF ENGINEERS.—Annual Meeting, Salt Lake City, Utah. R. B. Ketchem, Secretary, 702 Newhouse Building, Salt Lake City, Utah.

April 18.

DETROIT ENGINEERING SOCIETY. Annual Meeting, Detroit, Mich. F. H. Mason, Secretary, 614 Moffatt Bldg., Detroit, Mich.

April 18-20.

SOUTHERN GAS ASSOCIATION. Annual Meeting, Charlotte, N. C. E. D. Brewer, Secretary, Atlanta, Ga.

April 24-26.

IOWA STREET AND INTERURBAN RAILWAY ASSOCIATION. Annual Convention, Waterloo, Ia. H. E. Weeks, Secretary, Davenport, Ia.

April 28-30.

PLAYGROUND AND RECREATION ASSOCIATION OF AMERICA.—Annual Meeting, Richmond, Va.—H. S. Braucher, Secretary, 1 Madison Ave., New York City.

May 5-7.

NATIONAL CONFERENCE ON CITY PLANNING.—Annual Meeting, Chicago, Ill. Flavel Shurtleff, Secretary, 16 Congress Street, Boston, Mass.

May 12-14.

SOUTHWESTERN WATER WORKS ASSOCIATION.—Second Annual Convention, Fort Worth, Tex. E. L. Fulkerson, Secretary.

June.

INTERNATIONAL ROADS CONGRESS.—Third Congress, London, England. W. Rees, Jeffreys Secretary, Queen Anne's Chambers, Broadway, Westminster, London, S. W.

June 23-28.

AMERICAN WATER WORKS ASSOCIATION. Thirty-third Annual Meeting, Minneapolis, Minn. John M. Diven, Secretary, 47 State street, Troy, N. Y.

July 22-25.

LEAGUE OF WISCONSIN MUNICIPALITIES. Annual Convention, Neenah, Wis.

August 25-30.

FOURTH INTERNATIONAL CONGRESS ON SCHOOL HYGIENE. Buffalo, N. Y. Dr. Thomas A. Storry, Secretary General, College of the City of New York.

August 26-28.

CENTRAL STATES WATER WORKS ASSOCIATION.—Seventeenth Annual Meeting, Cedar Point, O.—R. P. Bricker, Secretary, Shelby, O.

September 1-6.

INTERNATIONAL ASSOCIATION OF FIRE ENGINEERS. Forty-first Annual Convention, Madison Square Garden, New York City. James McFall, Secretary, Roanoke, Va.

National Paving Brick Manufacturers Association.

The report of Secretary Will P. Blair, before the ninth annual convention, Chicago, Ill., March 3-5 contained a review of the work of his office. Some of the items are as follows: An aggregate of outgoing and incoming mail of 110,000 communications. An average of two per day of magazine and newspaper articles. A public address every fourth day. Attendance at public meetings, averaging two a week. Examining and reporting on two specifications a week. Consultations with engineers. Furnishing lantern slides and lecture materials. Preparation of bills recommended to legislature for passage. Newspaper and magazine advertising. Compilation of statistics of yardage. Efforts through collegiate institutions. Co-operation with the work of the Bureau of Standards. Special promotion work in a particular locality. Demonstrations of proper methods of brick paving. The secretary notes that owing to the extension of paving in new territory and the election of new officials to office it is necessary to answer elementary questions with the same care and completeness as the most advanced technical inquiries. The educational process must go at all times.

A committee is at work preparing suggestions for Federal aid. The construction of sample road leading out of Washington over the Chevy Chase road into Maryland, was delayed on account of materials and bad weather, and will be finished in the coming spring. The secretary recommends that the Secretary of Agriculture be requested to have the Office of Public Roads prepare a bulletin on vitrified paving brick for country highways. The appearance of the concrete pavements, as a competition to brick is noted, but apparently not regarded with much apprehension. In closing the secretary affirms his faith in the No. 1 Directions for the construction of brick street pavements as embodying the most advanced knowledge of the day.

Second Federal Aid Good Roads Convention.

The convention was opened at the Hotel Raleigh, Washington, D. C., March 6, with President Laurens Enos, of the American Automobile Association in the chair. After a brief address from Mr. Enos, George C. Diehl took the chair. Representatives Borlanel, of Missouri, Peter G. Ten Eyck, and Mr. Gordon, of New York State, made addresses referring to local conditions in their states and expressed themselves as in favor of Federal aid. H. J. Patterson, director of the Maryland experimental station at College Park, spoke of the improved highways of Maryland, and said that the absence of gravel connecting roads at the State lines limited their usefulness. Secretary of State Heber, of Louisiana, speak-

ing for the governor, expressed his approval of the Federal highway idea. Representative Barkley, of Kentucky, testified to the interest of the citizens of remote districts in the good road movement.

The delegates headed by Lausens Enos, George C. Diehl, A. G. Batchelder and T. B. Shoemaker, called on President Wilson in a body to enlist his interest in their cause.

That national roads be built connecting Washington with the capitals of every state in the Union was the sense of a resolution adopted at the second day's sessions. The resolution further advocated the creation, wherever they do not now exist, of effective State departments for the construction and maintenance of roads. Resolutions were adopted urging Congress to restore the Federal tobacco tax of 1879, and use the money thus raised for the building of roads. Plans were outlined for the building of roads, that would form a network throughout the entire country.

Among those who took part in the discussion were: William T. Page; Representative Moss, of West Virginia; Representative Kinkaid of Nebraska, Judge J. M. Lowe of Kansas City, Mo.; Pendleton Beckley of Louisville, Ky.; Samuel H. Lea of South Dakota, Dell M. Potter of Clifton, Ariz.; C. C. Gilbert of Nashville, Tenn., and Col. Cameron; J. A. Rountree, Alabama; G. B. Bullard, Arizona; Dr. J. O. Rush, Arkansas; P. H. Clark, California; F. V. Betty, Georgia; Arthur Staples, Maryland; James Atkinson, Louisiana; A. J. Duffy, Indiana; D. W. Shackelford, Missouri; J. E. Madden, New Jersey; Cyrus Kehr, Tennessee; Roy Stacy, Iowa; Elmer Hough, West Virginia; E. W. Sanders, Virginia; John B. Bird, Delaware; Michael F. Phalen, Massachusetts; L. H. Nelson, Maine; Percy Hooker, New Hampshire, and Jesse Taylor, Ohio.

Playground and Recreation Association of America.

Preparations are already under way for the recreation congress to be held in Richmond, April 28-30. Last June this recreation congress was held in Cleveland, Ohio. So large a number of interests had to be considered, and so many topics covered, that there were two sections of the congress, running simultaneously, one on recreation in cities and towns and another on rural recreation. The development of the last few months has more than kept pace with that of the previous years so that this two section arrangement will also have to be used in Richmond. Some of the topics which were covered in the meeting last year included matters of recreation and legislation; the use of schools and parks for recreation purposes; the relation of recreation to the assimilation of immigrants; besides questions of equipment and activities. To this congress will gather experts and playground workers from all over the country, and there will also be representatives from foreign lands. There

will also be those who are leading and backing the movement, although not actually participating in the management of it, representatives of chambers of commerce and of city governments, members of State legislatures, leaders from women's clubs and civic organizations of all kinds. It has been estimated that between 60,000 and 70,000 people thought the country are connected with the recreation movement; some of them recreation leaders, and many more of them serving on boards of directors, city council committees and the like.

Chicago, Black Hills, Yellowstone Park Interstate Highway Association

A call for a meeting to be held at Deadwood, S. D., March 31, April 1, has been issued by President A. L. Kinkead, of Huron S. D., and Secretary H. W. Troth, of Deadwood. Invitations have been extended to the auto clubs, commercial clubs and county commissioners all along the route embracing the states of Illinois, Wisconsin, Minnesota, South Dakota and Wyoming. A special invitation to President J. W. Parmley of Ipswich, Vice President J. L. White of Sioux Falls, Treasurer J. McD. Campbell of Huron and Secretary Ben M. Wood of Rapid City has been extended as officers of the South Dakota Good Roads association, which has general supervision over all good roads in this state. The meeting is for the purpose of mapping out the work of the coming summer. An effort will be made to induce auto tourists in the middle west to take the route this summer for their vacation, and the route will be prepared for their reception. The interstate highway commences at Chicago and goes through Milwaukee, Madison, La Crosse, Minneapolis, St. Paul, Rochester, Owatonna, Mankato, New Ulm, Sleepy Eye, Sanborn, Tracy, Lake Benton and thence through South Dakota by way of Brookings, Huron, Pierre, Rapid City, Deadwood, Lead, Spearfish, Sundance, Wyo., Moorcroft, Gillette, Buffalo and Cody, Wyo., to the park.

Indiana Sanitary and Water Supply Association.

The sixth annual meeting was held in Indianapolis, February 25-26, about 200 members and guests being present. The most important action taken by the association was the indorsement of a bill to enable the formation of a sanitary district in Northern Indiana. F. C. Jordan, secretary of the Indianapolis water company, who presided at the first session referred in his address to the Thornton act, recently passed. This act gives the State Board of Health mandatory powers over impure water supplies. H. A. Dill, of the Richmond water works, in speaking of coal analysis, said that the cost had equalled the saving. His plant burns four or five tons a day. Prof. J. W. Beede, Indiana University, read a paper on the influence of bedrock and surface deposits on the potability of

well water. In a limestone country, he said, the connection between surface and ground water is so close that all wells are unsafe. He said there was an underground stream in Lost Valley which is often as turbid as a surface stream. Charles Brossman described the first Imhoff tank built in Indiana, that at the State hospital at Julietta. A model of this plant was on exhibition. Philip Burgess described a 4,000,000-gallon water filtration plant now nearly built at Columbus, Ind. In the course of a discussion following Joseph W. Ellms' paper on "Standards of Purity for Public Water Supplies," Dr. Lumsden stated that Dr. Blue of the Public Health Service had recently ordered the naming of a commission of fifteen to twenty experts to define water supply standards. H. E. Jordan said it was difficult to fix bacterial standards for filter plants, in view of the fact that the effluents of filter plants of some cities having a low death rate showed high bacterial counts and the presence of colon bacilli. Mr. Ellms stated that in Cincinnati last year 75 per cent. of the 10 cu. cm. samples and 5 per cent. of the 1 cu. cm. samples gave positive tests for colon bacilli, yet the typhoid death rate was only 7.3 per 100,000. Mr. Burgess doubted if hard and fast standards would be valuable, and that local conditions and experience should be considered.

Western Society of Engineers.

At a meeting in the rooms of the society, Chicago, March 3, Paul Hansen, engineer of the State Water Survey, read a paper on the improvement of water works management by expert supervision. John W. Alvord said that the conditions of inefficiency and poor service were all too true, but as long as the man with an ambitious human nature in the small town continues to think he is a born expert, matters will not be changed materially. However, he said all consulting engineers would welcome the procedure suggested by Mr. Hansen.

There was a discussion of the legal status of the engineer. The general opinion was that for other than structural engineers regulation and licensing would be impracticable.

New York State Conference of Mayors.

Home rule will be discussed at a conference and dinner to be held at Albany, N. Y., on March 13, under the joint auspices of The Municipal Government Association and the Legislative Committee of the New York State Conference of Mayors. Governor Sulzer, Majority Leader Wagner of the Senate, Speaker Smith of the Assembly, and others prominent in the work of this and previous sessions, including representatives of all the principal parties, will take part.

An amendment to the General City law is pending, granting to every city power to regulate, manage and control its property and local affairs, and "all the rights, privileges and jurisdiction necessary and proper for carrying such power into execution.

PERSONALS

Brawner, C. R., City Engineer of Eagle Rock, has also been appointed City Engineer of El Monte.

Brossman, Charles, consulting engineer, Indianapolis, Ind., has moved his offices to the Merchants' Bank Building.

Coates, Wm., Pittsburg, Pa., has been appointed chief of the Bureau of Fire.

Derr, De Homer M., South Dakota State College, has been appointed State Engineer, succeeding Samuel H. Lea, on April 1.

Dewey, George F., Cairo, Ill., has been appointed City Engineer.

Harrison, B. E., who has been resident engineer in charge of the construction of the filter plant at Grand Rapids, Mich., has been appointed supervising engineer of construction for the Roberts Filter Manufacturing Company, Darby, Pa.

Loomis, W. A., Everett, Wash., has been appointed Chief of the Police Department.

Potter, Zenas L., New York City, and Franz Schneider, Jr., Boston, have joined the staff of the new Department of Surveys and Exhibits of the Russell Sage Foundation, 31 Union Square, New York. Mr. Potter was formerly field secretary of the New York Child Labor Committee and later inspector for the New York State Investigating Commission. Mr. Schneider has been Research Associate in the Sanitary Research Laboratories, Massachusetts Institute of Technology and health officer of Wellesley, Mass.

Sturtevant, James H., Albany, N. Y., is acting State Superintendent of Highways, pending the appointment of a successor to C. Gordon Reel.

Titsworth, R. B., contracting engineer of the McClintic-Marshall Construction Co., Pittsburg, Pa., has resigned and joined the staff of the Detroit Bridge and Steel Works, Detroit, Mich. C. H. Harlan succeeds Mr. Titsworth.

Van Ornum, S. J., recently City Engineer of Pasadena, Calif., has opened an office in the Pacific Bldg., San Francisco, Calif., as a consulting engineer, specializing in reinforced-concrete construction and municipal work.

Willis, N. W., Spartansburg, S. C., has been appointed City Engineer.

The following mayors have been elected:

MAINE.

Auburn A. W. Fowler
Bath E. W. Larrabee
Eastport J. P. Hutchinson
Ellsworth J. A. Cunningham
Hallowell Emery C. Beane
Lewiston William H. Hines
Rockland G. H. Blethen
S. Portland J. A. S. Dyer
Saco M. A. Pillsbury
Waterville W. R. Pattangall

GEORGIA.

Tallapoosa G. E. Pearce

MISSISSIPPI.

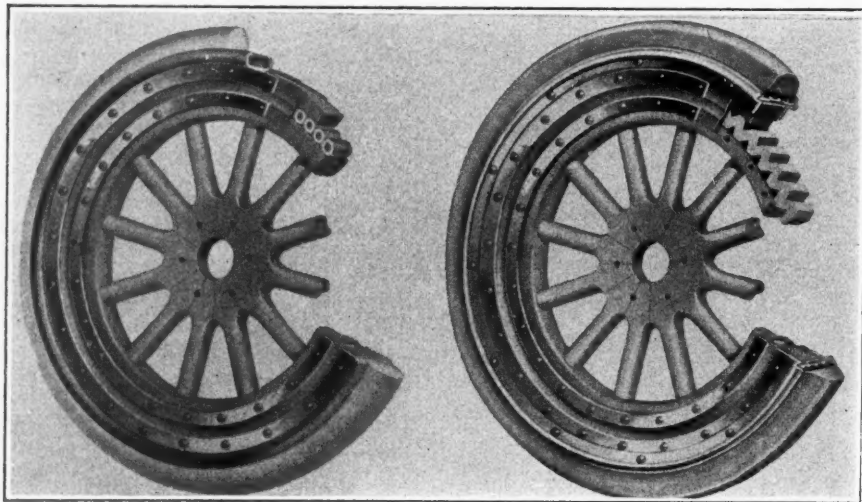
Handsboro H. J. A. Stiglets

MUNICIPAL APPLIANCES

Sewell Cushion Wheels.

The Sewell Cushion Wheel, made by the Sewell Cushion Wheel Company, Detroit, Mich., is recommended for use on medium and heavy weight vehicles, which are designed for high speed, such as fire apparatus. They are claimed to reduce the cost of tires as well as wheel maintenance, under severe conditions, such as those to which fire apparatus is subjected. Either solid or

permanent tire band. The rubber cushion occupies the space between the inner wheel and the outer felloe, making a road of soft rubber for the inner wheel. In this manner resiliency is obtained. A side rubber flange encircles the wheel on both sides and connects the inner and outer felloes, making the space containing the rubber cushion absolutely proof against air, dust and grease. The rubber flanges expand and contract be-



SEWELL CUSHION WHEELS—TWO TYPES OF RUBBER CUSHIONS.

pneumatic tires may be used on the wheel, according to the weight of the vehicle and the speed at which it travels. A motor fire engine with Sewell wheels and solid tires is said to ride as smoothly as the same vehicle with pneumatic tires, and at less expense. The chief of the Highland Park, Mich., fire department, writing to chief F. F. Langton, Joliet, Ill., recently said: "We have had the Sewell cushion wheels on one Webb motor engine from September 18, 1911, have driven them over all condition of streets, and owing to the reason that this engine covers a very large territory, she is always driven at a high rate of speed, very frequently to her full capacity of 55 miles per hour. Those wheels have been in constant service from above mentioned date, have always carried a weight of not less than 5½ tons, have received absolutely no repairs during that time, and are today in as good condition as when first placed in service. This engine has had an average of from 16 to 18 runs per month, the average length of runs being from 1½ to 3 miles. Our council has advertised for another motor engine and ladder truck, and the Sewell wheels have been specified in all bids."

The Sewell cushion wheel consists of a wooden wheel shown in the center of the illustrations, with a metal tire directly under the rubber cushion making it a wheel intact. Outside of this and the rubber cushion is an extra wooden felloe securely bolted to the

tween the inner and outer felloe as the cushion acts. There are thin side steel bands on each side of the wheel. These are bolted through, holding the side rubber flanges and two wooden felloes in place. Side steel bands extend partially over the rubber cushion from above and below, preventing lateral or side motion. There is no connection between wood and wood, or wood and iron, except through rubber, thus avoiding friction and wear. There are three types of rubber cushion wheels: Rubber rolls for light commercial cars. Zig-zag rubber cushion, for medium sized trucks. Flat rubber cushion, with cylindrical opening traversing it from side to side for heavy trucks.

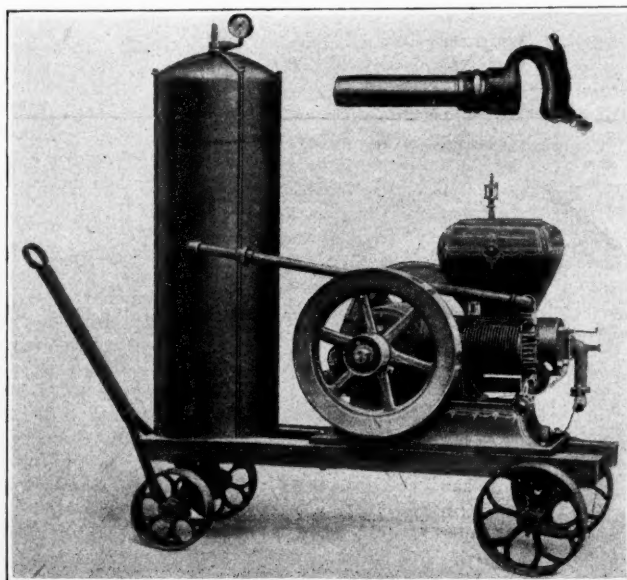
The Chicago Police Department are using Sewell wheels on their patrol wagons. The rapidity of the repeat orders shows the way they gained in favor. First order, December 2, 1911; second order, March 30, 1912; third order, August 14, 1912; fourth order, October 12, 1912; fifth order, November 8, 1912. Detroit also uses these wheels on some of their fire apparatus.

Senior Portable Combination Pneumatic Plant.

Foster & Hoster, 431 Dearborn street, Chicago, Ill., have placed on the market under the trade name Senior a portable pneumatic plant, suitable for any purpose, having a capacity of 20 cubic feet of free air per minute. The outfit has been used in the past principally for calking lead in main pipe joints. However the uses of such a plant are so many that it is a valuable piece of equipment for a city, public utility corporation or contractor. A compressor of 20 cubic feet capacity is sufficient to run a pneumatic hammer, a plug drill, four hand pneumatic tools for light stone cutting, a riveting or a chipping hammer.

The engine is a 5 horse-power gasoline with water cooled hopper; the compressor is 4½x6 inches, air cooled; height, 43, length 43 and width 39 inches; the air tank is 20 inches in diameter and 5 feet high. Entire length of outfit, 6 feet; total weight, 1,650 pounds; front wheels, 12 inches in diameter; rear wheels, 16; face of wheels, 4½; width of iron truck, out to out of wheels, 34 inches.

This plant differs from all other plants of this kind, in the fact that the engine and compressor are combined in one machine. The air piston is connected on the same shaft with the engine piston, making it what is termed a "double throw method," giving exactly the same power to compressor piston as to engine piston. The machinery is self-oiling and dust-proof. An important feature of the machine is the piston-discharge valve, taking the place of the old-style steam valve. The new valve makes it possible to reduce the valve space behind the air piston to a minimum. This valve is claimed to increase the efficiency about 15 per cent. The air compressor has an unloader which automatically relieves the load on the engine when the desired pressure is attained. This unloader can be set at any pressure up to 125 pounds. The gasoline tank is



AIR COMPRESSOR—20 CUBIC FEET CAPACITY.

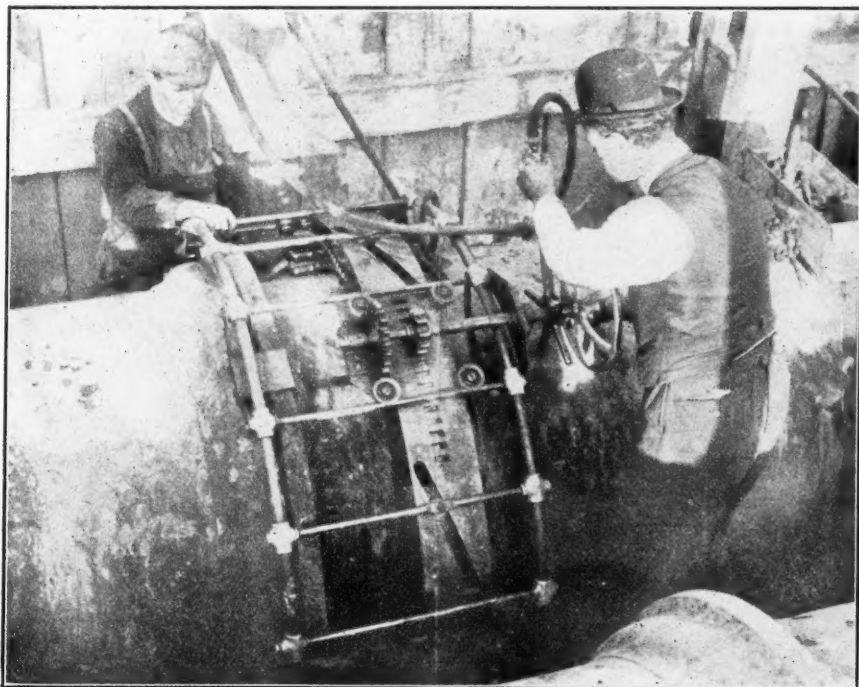
in the base of the engine. The carbureter is of the suction type which takes in the gasoline according to the load on the engine. It is claimed to save a gallon of gasoline a day.

American Calking Machine.

Lewis & Seely, 30 Church street, New York City, are the licensees of the American Calking Machine Co. for the machine herewith illustrated for calking water and gas mains. The machine consists of a framework made in four hinged sections so as to make its adjustment to the main easy. The frame carries a travelling ring which carries and guides the calking tool. If lead wool is used for the joints it is merely placed under this ring. The machine does the rest. The calking tool is pneumatically operated in the ordinary way. The ring carrying the calking tool is moved by a hand wheel and suitable gearing. The required pressure is applied to the tool by means of the cam sheet hand wheel.

The calking machine does its work equally well at all points of the joint, working effectually in places where a man could not. Considerable saving is also effected, due to the fact that it is not necessary to excavate to greater width at the bell. This item is a considerable one in rock cuts. It is also stated that the reduction in fixed charges owing to speed of work is an important consideration. Lewis & Seely are specialists in pipe calking and are prepared to send men and machinery anywhere.

The illustration shows a 48-inch machine at work in the trench; it can be readily seen that no bell hole was required. At this point the ground water rose so high in the trench that ordinary hand calking would have been prohibitive without pumping.



MACHINE FOR CALKING WATER MAINS.

INDUSTRIAL NEWS

Cast Iron Pipe.—Chicago. Pipe prices have been weak and quotations lowered. Quotations: 4-inch, \$30; 6 to 12-inch, \$28; 16-inch and up, \$27. Birmingham. Foundries are continuing operations on the usual scale. Small orders are coming in freely but large ones are scarce. Prices are maintained for small orders. For large orders they are shaded. Quotations: 4-inch, \$24.50; 6-inch, \$22.50. San Francisco: Tonnage has increased somewhat, though few large inquiries are in the market. New York: Public lettings appear to be getting fewer but private buying is normal. The expectation of lower prices for pig iron has a depressing tendency. Quotation: 6-inch, \$24 to \$25.

Lead.—Conditions are unchanged and the market is quiet. Quotations: New York, 4.35 c.; St. Louis, 4.20 c.

T. L. Smith Company Convention.

—A meeting of the out of town managers and agents of the T. L. Smith Company, Milwaukee, Wis., manufacturers of concrete and hot mixers and other contractors' equipment, celebrated the opening February 26-27, of the new office building across the street from the shops. The mornings were taken up with trips through the shops, explanations and inspections of the details of the machines. Lunches, banquets and entertainments relieved the routine of business. The afternoons were spent in listening to instructive talks by various members of the organization. President T. L. Smith occupied the chair. In his opening address Mr. Smith reviewed the history of the development of his inventions and of the business. Other addresses were as follows: E. W.

Brackenburg described the Chicago Street Paver, which has been nicknamed the Brackenburg Dreadnaught, and the hot mixer. P. G. West spoke on "A Chicago Mixer Man and His Convictions." Roy Hunter, Atlanta, Ga., described the Smith hand mixer. Geo. Hubbell and the President described the Symons gyratory crusher. Mr. Trimble of the Fairbanks-Morse company explained the construction and operation of the gasoline engine made by his company. E. R. Mather spoke on "Sales Correspondence." W. J. Buckley and Chas. F. Smith also spoke on selling topics. A number of after dinner speeches on lighter topics were made at the banquets.

Road Machinery Reorganization.

The American Road Machinery Company, Kennett Square, Pa., announce the purchase of the entire properties of the following companies:

American Road Machine Company, Kennett Square, Pa.

Climax Road Machine Company, Marathon, N. Y.

Indiana Road Machine Company, Fort Wayne, Ind.

Monarch Road Roller Company, Groton, N. Y.

Lima Contractors Supply Company, Delphos, Ohio.

S. Jones Phillips, vice-president, states that the new company with larger capital, has been formed to increase efficiency in operation to meet the rapidly growing demand for the road machinery. The companies will be operated along the same lines as hitherto and the machinery will be marketed under the same trade names. The active management of the properties will continue without change.

Mineral Rubber Pipe Coating.—The American Asphaltum & Rubber Company, Harvester Bldg., Chicago, Ill., have published a folder quoting an article that appeared in the Municipal Journal, August 18, 1912, written by John F. Skinner, principal assistant to the city engineer of Rochester, N. Y., describing the laying of a "Large Submerged Sewer Outlet" in Lake Ontario. The effluent conduit is a 66-inch lock-bar pipe coated with Pioneer Mineral Rubber Pipe Coating. The contract was awarded to the T. A. Gillespie Company, New York.

Goulds Mfg. Co. Organization.—The annual meeting of the stockholders of The Goulds Mfg. Co. was held at Seneca Falls, N. Y., Feb. 24. No change was made in the board of directors and the following officers were re-elected: President, N. J. Gould; Vice-Presidents, D. V. Colby, W. D. Pomeroy, W. E. Davis, W. E. Dickey; Secretary, H. S. Fredenburg; Treasurer, B. R. Wells; Assistant Treasurer, E. W. Medden.

Change of Name.—The Austin-Western Co., Ltd., 910 South Michigan avenue, has changed its firm name to The Austin Western Road Machinery Co.

THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—Sewerage, Water Supply and Public Lighting—Fire Equipment and Supplies—Bridges and Concrete Work—Sanitation, Garbage and Waste Disposal—Police, Parks and Miscellaneous—Proposals and Awards.

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also correction of any errors discovered.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREETS AND ROADS				
O., Medina	Mar. 15	Imp. river road, 7,400 ft.	Ira Waldo, Township Clerk.
Pa., Oil City	Mar. 15	Wood block, 5,200 yds., cost \$12,000	G. F. Roess, City Engr.
Wis., Watertown	2 p.m., Mar. 15	Reinforced concrete pavement, 3 sts.	A. Kraeft, Ch. Bd. Pub. Wks.
Ont., Welland	Noon, Mar. 15	Concrete sidewalks, 33 miles	G. R. Boyd, Town Clerk.
Kan., Anthony	2 p.m., Mar. 15	Concrete curb and gutter, 40,000 lin. ft.	W. A. Miller, Mayor.
Tenn., Selma	Mar. 15	Concrete sidewalks, 12,000 sq. ft.	Mayor.
O., Lowellville	Noon, Mar. 16	Sidewalks, crosswalks, curbs & gutters.	C. W. Baker, Clk.
Wyo., Sheridan	10 a.m., Mar. 17	Wood, bitulithic, asphalt, &c., 21,800 yds.	J. J. Witherow, City Clerk.
Minn., Minneapolis	11 a.m., Mar. 17	Grading	A. P. Erickson, Co. Aud.
S. D., Aberdeen	10 a.m., Mar. 17	Creosoted block, brick or concrete.	F. V. Raymond, Co. Aud.
N. Y., New York	2 p.m., Mar. 17	Asphalt blocks, flag sidewalks	Geo. McAneny, Boro. Pres.
Cal., Los Angeles	Mar. 17	Oil macadam	A. M. McPherson, Deputy Clk.
N. L., L. I. City	11 a.m., Mar. 17	Concrete sidewalks, granite blocks, flagging, asphalt blocks, &c.	M. E. Connolly, Boro. Pres.
N. J., Englewood	8 p.m., Mar. 18	Asphalt block	R. Jamieson, C. Clerk.
Minn., Ely	8 p.m., Mar. 18	Cement sidewalks, curbing, drainage	C. A. Nutter, C. Engr.
N. Y., Mt. Vernon	5 p.m., Mar. 18	Curbing Summit ave.	City Clerk.
Conn., New Britain	8 p.m., Mar. 18	Brick, wood, asphalt, granite or bitulithic, 18,000 yds.	J. E. Moore, Pres. Bd. P. W.
N. J., Maplewood	Mar. 18	Oiling 8 miles streets	W. H. Kemp, Chrmn. Com.
Del., Wilmington	Mar. 18	Macadam 3 miles	Jas. Wilson, St. Hwy. Comr.
Md., Rockville	Noon, Mar. 18	Sec. state highway, 7 miles (3 sections)	Co. Comrs.
Ala., Birmingham	3 p.m., Mar. 18	Asphalt, bitulithic, bituminous concrete, wood block, concrete, 55,000 sq. yds., cost \$250,000.	W. G. Kirkpatrick, C. Engr.
N. Y., Brooklyn	11 a.m., Mar. 18	Asphalt several streets	A. E. Steers, Boro. Pres.
Mo., St. Louis	Mar. 18	Brick, asphalt, bitulithic, telford oil treatment	Bd. Pub. Improvements.
O., Cincinnati	Noon, Mar. 18	Furn. 100 tons road binder	Wm. Hodgkinson, sec. P'k Com.
Del., St. Georges	Noon, Mar. 18	Macadam road	Jas. Wilson, Hwy. Comr.
Ohio, Minster	Mar. 19	Paving, 40,000 yds.	L. W. Schneider, Vil. Clerk.
Ia., Washington	Mar. 19	Dolarway, 12,000 yds.	Iowa Engr'g Co., Clinton.
Ohio, Bellaire	Noon, Mar. 19	Bituminous macadam, glutrin macadam, &c.	W. J. Campbells, Twp. Clerk.
Ohio, Cleveland	11 a.m., Mar. 19	Imp. road	J. F. Goldenbogen, Clerk.
Minn., Marshall	10 a.m., Mar. 19	Grading state road	E. S. Shepard, Co. Aud.
O., Cambridge	Noon, Mar. 20	Paving or paving block, 6,000 yds.	A. M. Cosgrove, C. Engr.
O., Waterville	Noon, Mar. 20	Brick, asphaltic concrete, treated macadam, 4,400 yds.	C. J. Fisher, Clerk.
O., Bremen	Mar. 20	Brick paving, 600 lin. ft.	E. T. Purvis, Town Clerk.
Ill., Monmouth	Mar. 21	Vit. brick, 5,800 sq. yds.	J. P. Moore, Mayor.
Mo., Kansas City	2 p.m., Mar. 21	Asphaltic cement, refined asphalt or refined asph. & flux.	A. C. Wright, Purch. Agt.
N. J., Millville	8 p.m., Mar. 21	Brick, 21,000 yds.	L. H. Hogate, C. Recorder.
Ala., Opelika	Mar. 21	Dolarway, brick, wood, asphalt, &c., 50,000 sq. yds.	S. S. Black, C. Clerk.
Ohio, Archbold	Mar. 21	Paving, 9,000 yds.	J. H. Fagley, Vil. Clerk.
Pa., Chambersburg	8 p.m., Mar. 24	Paving, 15,700 yds.	C. H. Paterson, Boro. Clk.
Minn., Minneapolis	11 a.m., Mar. 24	Gravel, 17,000 lin. ft.	A. P. Erickson, Co. Aud.
N. J., New Brunswick	2:30 p.m., Mar. 24	Furn. crushed stone.	P. H. S. Hendricks, Dir.
D. C., Washington	2 p.m., Mar. 25	Repairing asphalt for 2 years	C. H. Rudolph, Comr.
Ia., Mt. Vernon	2 p.m., Mar. 25	Brick, wood, asphalt, concrete, &c.	W. E. Gamble, Twn. Clk.; Ia. Engr. Co., Engrs., Clinton.
O., Geneva	Noon, Mar. 25	Brick on concrete, 5,088 yds., 3,692 ft. 8-in. sewer.	W. E. Morgan, Vil. Clk.; Cummings & Downer, Paines'le, O.
O., Columbus	10 a.m., Mar. 25	Brick in Euclid, 1.33 miles	Jas. R. Marker, St. Hwy. Comr.
Wash., Fort Flagler	11 a.m., Mar. 25	Granolithic sidewalks	H. O'Leary, Q. M.
Ind., Bloomfield	Mar. 25	Brick, 2 miles, cost \$32,000	City Clerk.
N. J., Long Branch	Mar. 26	Paving and graveling sts.	Mayor Newcomb.
O., Columbus	10 a.m., Mar. 26	Waterbound macadam in Montville, .98 mile; brick in Wadsworth, .84 mile	Jas. R. Marker, St. Hwy. Comr.
O., Painesville	Noon, Mar. 26	Brick, 3 1/2 miles, in Willoughby.	W. A. Davis, Sec.; Cummings & Downer, Engrs., Painesville
Sask., Saskatoon	Noon, Mar. 28	Pavement, concrete walks, curbs, gutter, &c.	F. E. Harrison, Mayor.
Alta., Calgary	Mar. 29	Concrete about reservoir	A. S. Dawson, Chief Engr.
O., Columbus	2 p.m., Mar. 31	Waterbound macadam in Cardington, 1.92 miles; brick in Center, .8 mile	Jas. R. Marker, St. Hwy. Comr.
O., E. Youngstown	Noon, Mar. 31	Grading, paving and draining 12 streets.	P. J. Carney, Clerk.
Ind., Indianapolis	10 a.m., Mar. 31	Culverts	W. T. Patten, Co. Aud.
Ill., Dixon	Apr. 1	Vitrified brick, 30,652 yds. concrete curb and gutter.	B. Grover, C. Clerk.
Pa., Monongahela	Apr. 1	Brick, 8,000 sq. yds. Cost, \$12,000.	J. A. Morrow, C. Eng.
Ga., Washington	Apr. 3	Paving 20,000 sq. yds.	L. D. Faver, Mayor; Jaudin Engr'g Co., Atlanta.
O., Chagrin Falls	Noon, Apr. 3	Paving 2 sts.	H. B. Pughley, Vil. Clk.; W. H. Evers Engr. Co., Cleveland.
Ill., Chicago	2 p.m., Apr. 3	Roadway, 2,500 lin. ft.	E. A. Smyth, Pres. San. Dist.
Ind., Greencastle	11 a.m., Apr. 7	Macadam, 9,615 lin. ft.	C. L. Airhart, Co. Aud.
Fla., Bartow	Noon, Apr. 7	Macadam	J. A. Johnson, Clerk Comrs.
Ind., Logansport	Apr. 9	Macadam roads	J. E. Wallace, Co. Aud.
W. Va., Fairmont	Noon, Apr. 10	Roads, 32.7 miles	J. F. Phillips, Co. Clk.
Mich., Manistique	2 p.m., Apr. 15	Macadam, 3 miles	J. R. Wilson, Engr., Washington.
SEWERAGE				
Tex., Pecos	Mar. 15	Sewer system, cost \$35,000	City Clerk.
Ill., Chicago	11 a.m., Mar. 15	Gate valves, valve basin covers, &c.	L. E. McGann, Comr.
N. Y., New York	2 p.m., Mar. 17	Reconstruction sewers	G. McAneny, Boro. Pres.
N. J., Jersey City	2 p.m., Mar. 17	Reconstruction sewer	E. B. See, C. Clerk.
Mo., California	Mar. 17	Sewer laterals and appurtenances	H. E. Blakeman, C. Clk.; Burns & McDonnell, Engrs., Kan. C.
O., Shaker Heights	Noon, Mar. 17	Sewers	C. A. Palmer, Vil. Clk.; W. B. Willard, Engr., Cleveland.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
Ohio, Conneaut	Noon, Mar.	17..Sanitary sewer, 2,000 ft. 8-in. septic tank	A. W. Pelton, Dir. Pub. Serv.
Wyo., Sheridan	10 a.m., Mar.	17..Storm sewers	J. J. Witherow, City Clerk.
D. C., Washington	2 p.m., Mar.	17..Sewers	C. H. Rudolph.
Ill., Edwardsville	3 p.m., Mar.	17..Furn. 8,000 ft. 8 to 15-in. sewers.	N. O. Nelson Mfg. Co.
Mich., Ludington	1 p.m., Mar.	17..Vitrified pipe, 3,500 ft.	Dean Thompson, C. Clerk.
Ia., Ottumwa	8 p.m., Mar.	17..Sewers in several sts.	W. W. Cummings, Chr. Com.
O., Sandusky	Noon, Mar.	18..Sewer	E. W. Rhode, Clk. Dir. P. S.
Minn., Ely	8 p.m., Mar.	18..Pipe sewer, 5,400 ft. 8 to 15-in.	C. A. Nutter, C. Engr.
O., Columbus	Noon, Mar.	18..Materials and work in repairs for 1913	S. A. Kinnear, Dir. P. S.
Kan., Burlingame	Mar.	18..Clay pipe sewers	J. Griffin, City Clerk.
Ont., Toronto	Noon, Mar.	18..Pumps with motors and starting devices	H. C. Hocken, Mayor.
Ont., Bowmanville	8 p.m., Mar.	19..Sewerage system	John Lyle, Town Clerk.
Wis., Deer Creek	Mar.	20..Town ditch, 19,200 ft.	Chas. Murray, Town Clerk.
Pa., Mobile	Noon, Mar.	20..Brick or concrete sewer	H. Pillans, Comr.
Pa., Wilkes-Barre	Noon, Mar.	20..Clay pipe sewers, 24 sts.	P. Steinhauer, Chrmn.
Ida., Idaho Falls	Mar.	20..Pipe sewers, 22,000 ft. 8 to 12-in.	Frank F. Beach, C. Engr.
O., Bremen	Mar.	20..Vit. pipe, 12,000 ft., 6 to 24-in.	E. T. Purvis, Twn. Clk.; Jno. Avery, Engr., N. Lex., O.
O., St. Bernard	Noon, Mar.	20..Vit. pipe, 6 and 8-in.	H. A. Nunlist, Engr., Cincin.
Ill., Princeton	4 p.m., Mar.	20..Constrn. well	S. S. Evans, Chrmn. Com.
Ia., Belle Plaine	8 p.m., Mar.	24..Sewer and water connections	S. R. Ferree, C. Clk.
N. Y., Palatine Bridge	10 a.m., Mar.	22..Sewer system and disposal plant	M. Vrooman, Gloversville, Eng.
Tenn., Martin	2 p.m., Mar.	24..Pipe sewers, 50,000 ft. 8 to 15-in.	J. H. Wilson, Rec.; R. C. Huston, Engrs., Memphis.
Ala., Mobile	Noon, Mar.	25..Vit. pipe, 30,000 ft. 8 to 20-in.	Wright Smith, C. Engr.
N. J., Secaucus	Mar.	25..Sewer system	S. Maulbeck, Boro. Engr.
O., Geneva	Noon, Mar.	25..Pipe sewer, 3,692 ft. 8-in.	W. E. Morgan, Vil. Clk.; Cummings & Downer, Engrs., Painesville.
La., Lafayette	Mar.	27..Franchise for sewer system	C. D. Boudreaux, Chr. Com.
Sask., Saskatoon	Noon, Mar.	28..Storm sewer, 6,525 ft., 2,100 ft. connections	G. T. Clark, City Engr.
O., Gallon	Apr.	1..Sewer, 44,000 ft. 4 to 18-in.	A. O. Theobald, C. Engr.
Pa., Scranton	Apr.	1..Disposal plant at Hillside Home	W. Matthews, Pres.
Ia., Burlington	4 p.m., Apr.	2..Sewer pipe for year	Robt. Kroppach, C. Clk.
WATER SUPPLY				
Ont., Sarinia	Mar.	15..Water works, cost \$240,000	R. A. McLean, C. Engr.
Ia., Burlington	Noon, Mar.	15..Clear water basin	Citizens' Water Co.
O., Shaker Heights	Noon, Mar.	17..Water mains, 6-in.	C. A. Palmer, Vil. Clerk.
N. J., Asbury Park	Mar.	17..Pumping engine, 4,000,000 gals.; pressure filter, remodeling pump and wells, 200 h.-p. boiler, 95,000 ft. c.-i. pipe.	R. L. Savage, C. Engr.
Mont., Cascade	4 p.m., Mar.	17..Matheson joint pipe, 20,000 ft., &c.	H. D. Hall, Mayor; Swearingen & McCulloh, Engrs.
Sask., Swift Current	Noon, Mar.	17..C.-i. pipe, 600 tons; valves, hydrants, &c.	G. D. Mackey, Town Engr.
Conn., Meriden	Noon, Mar.	18..Dam, reservoir, pipe laying, &c.	W. S. Clark, Supt.
Tenn., Nashville	Mar.	18..Water gates and 200 valve boxes	Bd. of Pub. Works.
Ont., Bowmanville	8 p.m., Mar.	19..3 reservoirs, water mains, hydrants, valves, &c.	John Lyle, Town Clerk.
Mich., Saline	Mar.	20..Water works	A. J. Warren, Vil. Clerk.
Ark., Sulphur	2 p.m., Mar.	20..Power house, pump house, elec. equip., mains, standpipe.	C. J. Williams, Chr. Bd.; A. C. Moore, Engr., Joplin, Mo.
O., Akron	Noon, Mar.	21..C.-i. pipe, 1,024 tons; sluice gates, gate valves, boxes, &c.	R. M. Pillmore, Dir. P. S.
Sask., Saskatoon	Noon, Mar.	21..Water works brass goods, 1,000 meters, lead pipe, &c.	F. E. Harrison, Mayor.
Va., Richmond	Noon, Mar.	21..C.-i. pipe, valves, hydrants, meters, lead, brass work, &c.	E. E. Davis, Supt.
Pa., Tarentum	8 p.m., Mar.	24..Two 1,000,000-gal. pumps, 2 centrifugal pumps, basins, filters, c.-i. pipe, &c.	W. F. Denny, Pres.; L. Hudson, McKeesport, Engr.
Conn., Meriden	Noon, Mar.	25..Concrete dam, distributing reservoir, pipe laying	W. S. Clark, Supt.
N. Y., W. Winfield	1 p.m., Apr.	1..C.-i. pipe, 21,000 ft. 4 to 10-in.; pump house stand pipe, &c.	A. C. Hackley, Vil. Clk.; W. G. Stone & Son, Engrs., Utica.
Okla., Hinton	About Apr.	1..Water works and lighting plant	Benham Engr. Co., Okla. City.
N. S., Halifax	Noon, Apr.	2..Reservoir and gate house	J. J. Hopewell, Clerk.
Ky., Madisonville	Apr.	2..C.-i. pipe, steel tank, sewers.	W. J. Dulin, Sec. Bd. P. Wks.
Hayti, Port au Prince	Apr.	3..Water works, cost \$400,000	Dept. Travaux Publics.
N. J., Jersey City	Apr.	15..Steel concrete conduit, cost \$500,000.	C. A. Van Kuren, C. Engr.
Sask., N. Battleford	8 p.m., Apr.	15..C.-i. and steel water mains, hydrants, &c.	D. S. Walker, Mayor.
LIGHTING AND POWER				
Pa., McKeesport	4 p.m., Mar.	17..Vertical water tube boiler, 400 h.-p.	C. E. Soles, City Controller.
Sask., Swift Current	Noon, Mar.	17..Sinking gas well	G. D. Mackie, Town Engr.
Fla., Gainesville	4 p.m., Mar.	17..Electric light system and water works	H. E. Taylor, Ch. Bd. P. Wks.
Tex., Alice	Mar.	17..Franchise for electric light	P. S. Anderson, C. Clk.
Ill., Chicago	11 a.m., Mar.	17..Horizontal watertube boiler, 340 h.-p.	L. E. McGann, Comr.
Sask., Regina	Mar.	18..Water tube boilers, 6 500 h.-p. stokers, super-heaters, &c.	E. W. Bull, Supt.
D. C., Washington	Mar.	22..Generator, 200-k.w., switchboard, &c., for Pearl City, T. H. Navy Dept.	J. G. White, Mayor.
Mass., Holyoke	3 p.m., Mar.	24..Supplies for gas and electric works	G. H. Smith, Boro. Clerk.
N. J., Linden	8 p.m., Mar.	25..Electric lights, 76, 32 candle-power.	G. D. Mackie, Town Engr.
Sask., Swift Current	Noon, Mar.	31..A. C. generators, one 200-k.w. and one 400-k.w.	Quartermaster.
New Mex., Ft. Bayard	6 p.m., Apr.	14..Three transformers and one motor	F. S. Shields, Sec. S & Wtr. Bd.
La., New Orleans	3 p.m., Apr.	18..One 150 h.-p. motor, contract 54-D.	Comision de Puertos.
Chile, Santiago	Sept.	10..Illuminating plant for port works	
FIRE EQUIPMENT				
N. J., Irvington	8 p.m., Mar.	17..Motor apparatus, one 4 & one 6-cylinder triple comb. engine, one 4 & one 6-cylinder comb. hose & chemical.	M. Stockman, Town Clerk.
Tex., Austin	Noon, Mar.	17..Motor comb. hose and chemical wagon	J. P. Hart, Supt. Pub. Safety.
D. C., Washington	3 p.m., Mar.	17..Fire alarm system for warehouse	Supervising Architect.
Ill., Freeport	Mar.	17..Motor apparatus, aerial ladder, combination pump and chemical, combination hose and chemical	City Clerk.
Ind., Fort Wayne	Mar.	18..Fire hose, 1,000 ft., 5-in. suction hose.	J. C. Hutzell, Chrmn. Bd.
Ill., Chicago	11 a.m., Mar.	18..Suction hose and chemical hose	C. F. Seyferlich, Fire Marshall.
Sask., Saskatoon	Apr.	15..Two motor pumping engines	F. B. Harrison, Chr. Comrs.
BRIDGES				
Pa., Brookville	Noon, Mar.	15..Concrete arch	W. C. Byerly, Co. Clerk.
Pa., Chester	Mar.	17..Concrete bridge	City Clerk.
N. Y., Albany	Noon, Mar.	18..Arch Aqueduct at Medina	D. W. Peck, Supt. Pub. Wks.
Minn., Waseca	2 p.m., Mar.	18..Reinforced concrete culvert	T. Peterson, Co. Aud.
Ill., Mode	Mar.	20..Concrete bridge, cost \$1,400.	T. W. Carroll, Town Clerk.
Ill., Stockton	1 p.m., Mar.	20..Concrete bridge, cost \$3,400	M. A. Goodmiller, Town Clerk.
Mo., St. Louis	Noon, Mar.	21..Concrete viaduct	Bd. Pub. Impts.
Pa., Butler	Noon, Mar.	22..Four concrete bridges	W. B. Scott, Co. Aud.
Ill., St. Jacobs	2 p.m., Mar.	22..Four concrete bridges, cost \$3,225.	W. P. Sweeny, Town Clerk.
N. J., New Brunswick	2:30 p.m., Mar.	24..Concrete bridge	P. H. S. Hendricks, Dir.
Pa., Pittsburgh	10 a.m., Mar.	25..Concrete arch bridge	J. G. Armstrong, Dir. P. W.
Va., Richmond	Noon, Apr.	15..Concrete bridge and viaduct approaches	C. E. Bolling, City Engr.
N. Y., Minetto	About Apr.	15..Reinforced concrete bridge	Concrete Steel Engr. Co., N. Y.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
MISCELLANEOUS				
Ky.	Louisville	Noon, Mar. 15	Poor house, reservoir heating and pumping plant	D. B. Davis, Co. Clerk.
Ill.	Aurora	2 p.m., Mar. 15	Motor combination patrol and ambulance	M. F. Smith, Chrmn.
S. C.	St. Matthews	Noon, Mar. 16	Court house and jail	J. S. Wannmaker, Chr. Com.
Pa.	Chester	8 p.m., Mar. 17	Concrete retaining walls, &c.	W. Provost, Jr., Chr. Com.
N. J.	Newark	5 p.m., Mar. 17	Ditches, 20 miles	Mosquito Commission.
Ind.	Fort Wayne	10 a.m., Mar. 18	Folding cell bunks for jail	C. H. Brown, Co. Aud.
S. C.	St. Matthews	Noon, Mar. 18	County jail	J. S. Wannmaker, Chrmn.
Ont.	Toronto	Noon, Mar. 18	Abattoir and rendering building	H. C. Hocken, Mayor.
N. Y.	New York	11 a.m., Mar. 18	Concrete tile roofs, five superstructures	Chas. Strauss, Pres. Bd.
N. J.	Long Branch	10 a.m., Mar. 19	Public pavilion	W. R. Warwick, C. Clerk.
O.	Akron	Noon, Mar. 19	Motor police patrol wagon	D. P. Stein, Dir. P. S.
O.	Cleveland	Noon, Mar. 19	Track scale	W. J. Springborn, Dir. P. S.
Ind.	Indianapolis	10 a.m., Mar. 20	Three voting machines	W. T. Patten, Co. Aud.
O.	Cleveland	Noon, Mar. 20	Motor truck for Street Cleaning Department	W. J. Springborn, Dir. P. S.
Wis.	Hurley	10 a.m., Mar. 20	Jail and Sheriff's residence	W. D. Tyler, Co. Clerk.
Fla.	Pensacola	Noon, Mar. 21	Wharf	L. E. Thornton, C. Engr.
Mass.	Boston	Noon, Mar. 25	Section B Dorchester tunnel	B. L. Beal, Sec. Com.
Roumania	Platna	Mar. 26	Abattoir, cost \$35,000	No. 10470 Bu. Mfs., Wash, D.C.
D. C.	Washington	Mar. 26	Plans for closed dump carts, 6 cu. meters capacity	No. 10409, Bureau of Mfrs.
Fla.	Pensacola	4 p.m., Mar. 28	Uniforms for police & firemen	A. E. Langford, C. Clk.
N. J.	Camden	8 p.m., Apr. 2	Collecting garbage	R. J. Shelhamer, Chrmn. Com.
N. J.	Newark	3.30 p.m., Apr. 7	One or more motor comb. patrol wagons	John Baader, Pres. Com.
Ala.	Jasper	Noon, Apr. 10	Jail building	J. W. Shepherd, Probate Judge
N. Y.	Lockport	About May 1	Garbage disposal plant, cost \$8,000	J. F. Freshet, C. Engr.

STREETS AND ROADS

Little Rock, Ark.—Bill has been passed for construction of Little Rock and Memphis highway. Proposed road passes through Counties of Pulaski, Lonoke, Monroe and St. Francis, and Commissioner is named for each county. It is provided that Pulaski County shall contribute \$75,000 toward cost of road, and that people are to have right to vote whether they want it or not.

Los Angeles, Cal.—Petitions have been received for numerous street improvements.

Los Angeles, Cal.—Bonds for Hammon act improvement of Sixth ave. have been sold, according to report of City Treasurer, and improvement can go ahead. Bonds amounted to \$1,621.21.

Pasadena, Cal.—Improvement of Lincoln ave. is being planned.

Pasadena, Cal.—Resolution has been adopted for improvement of Winona ave.

Pasadena, Cal.—John Beyer, Superintendent of Streets, recommends that proceedings be started for placing oil macadam pavement on San Pasqual st., from Catalina ave. to Hill ave.

Pasadena, Cal.—Proceedings have been ordered started to bring about construction of sidewalks on East Orange Grove ave., between Fair Oaks and Marengo, where walks have not already been built. Sidewalks also have been ordered on Michigan ave., between Santa Fe tracks and Maple st.

Roseville, Cal.—Ordinance setting April 15 as date for election to vote on issuance of \$20,000 bonds for construction through Roseville of link in the State highway has been given first and second readings at meeting of trustees. Proposed highway is to be two miles in length.

Sacramento, Cal.—Bids have been opened by California Highway Commission for construction of road between Rancho El Encino and Calabasas, distance of 10 miles, in Los Angeles County, of Portland cement concrete and bituminized surface. Three lowest bidders were: John D. Marsh, \$55,555; J. H. Considine, \$61,151; Roger Bros. Co., \$61,389.

San Francisco, Cal.—Specifications for paving and curbing of north half of Twentieth st., between Dolores and Church sts., fronting Mission Park, have been approved.

Pueblo, Col.—Plans are being considered for paving in north side.

Waterbury, Conn.—Supt. Kennedy of Street Department has presented his estimate of laying sidewalks and curbing on Thomaston ave., from Chapel to Homer sts., and amount was \$5,176.25.

Waterbury, Conn.—Board has passed vote recommending that following streets be paved with substantial material to be decided upon by Board of Aldermen at its next meeting: Willow st., from end of pavement to Roseland ave.; Meadow st., from Field st. to Bank st.; Bank st., from Exchange pl. to Grand st., and North Elm st., from Kingsbury to East Main st. Board has also recommended that tarvia top-dressing be provided on Canal st.

Pensacola, Fla.—Question of what streets will be eliminated from proposed paving plan of Board of Bond Trustees in order to make provision for paving of

DeVilliers st., from Gregory to Jackson, is being discussed.

St. Augustine, Fla.—Board of County Commissioners and County Engineers are busy making minute inspection of main county highways for purpose of determining what will be best material to use in hard surfacing these roads on proposed bonding plan, which will soon be placed before people of St. Johns County for ratification.

Atlanta, Ga.—Peachtree st., from Sixth st. to Fifteenth st., may be repaved, instead of repaired.

Augusta, Ga.—Petition has been submitted asking that Walker st. be extended from Eve or Milledge st. to Battle row. Matter was referred to Streets and Drains Committee.

Pekin, Ill.—Board of Local Improvements has adopted resolution for improvement of following streets: Eighth, Seventh and Hillier sts., Thorp pl. and Haines ave. Board has adopted and approved, at same time, itemized estimate of cost of proposed improvement as made by engineer of this board, itemized as follows: 16,800 sq. yds. brick paving on a concrete foundation 5 ins. thick covered with a sand cushion 2 ins. thick, the interstices filled with a cement grout filler over which shall be spread $\frac{1}{2}$ in. of clean, sharp sand, complete in place, at \$1.60 per sq. yd., \$26,880; 5,600 cu. yds. of excavation and filling at 30c. per cu. yd., \$1,680; 600 lin. ft. of new concrete curb, 5x20 ins., at 25c. per ft., \$150; 320 lin. ft. of protection curb, at 25c. per ft., \$80; \$6,500 lin. ft. of curb to reset, at 10c. per ft., \$650; lawful expenses, court costs in making, levying and collecting said assessment, \$1,766; total, \$31,206.

Pekin, Ill.—Board of Local Improvements has adopted resolution for improvement of various streets. Board has adopted and approved itemized estimate of proposed improvements as made by engineer of this board as follows: 41,000 sq. yds. brick paving on a concrete foundation 5 ins. thick, covered with a sand cushion 2 ins. thick, the interstices filled with a cement grout filler over which there is spread $\frac{1}{2}$ in. of sand, complete in place, at \$1.60 per sq. yd., \$65,600; 13,700 cu. yds. excavation and filling at 25c. per cu. yd., \$3,425; 5,000 lin. ft. new concrete curb at 25c. per ft., \$1,250; 1,000 lin. ft. protection curb, at 25c. per ft., \$250; 14,825 lin. ft. stone curb reset, etc., 10c. per ft., \$1,482.50; lawful expenses, making, levying and collecting said assessment, \$4,300; total, \$76,307.50.

Connelton, Ind.—The County Commissioners have sold \$70,000 bond issue for construction of 18 miles of rock roads out of this city. There were 7 bids, of which highest was that of Breed Harrison & Co., jointly with Miller & Co., both of which are of Indianapolis. Their premium was \$985. Anton Rudolph, a local man, was appointed construction manager, and W. H. Cost, of Rockport, engineer-in-chief.

Ft. Wayne, Ind.—Board of Works has under advisement petition asking for paving of Lafayette st., from Wiebke to Lillie st. Paving has been ordered from Pontiac to Wiebke st., but residents want it extended.

Fort Wayne, Ind.—Plans and estimates of cost of work at Harrison st. with Pennsylvania will go to Council for

ratification. City Engineer Randall estimates that work city itself will do at this crossing will amount to \$6,996.40, while municipality's share in railroads work on basis of 25 and 75 per cent. will be \$8,335. Railroad estimates that its work at Harrison st. will cost \$88,074.

Indianapolis, Ind.—City Engineer Klausmann has reported that 9 of 14 resident property owners are in favor of paving Dearborn st., from Roosevelt ave. to Glen drive, and board has ordered him to prepare plans for the work.

Indianapolis, Ind.—Resolutions have been adopted by Board of Public Works for large number of contemplated street improvements. Streets Board proposes to pave are as follows: King ave., from Michigan to Cavell st., estimated cost \$17,880; Nineteenth st., from Illinois st. to Capitol ave., \$6,187; Thirty-third st., from Central ave. to Meridian st., \$16,478; Broadway, from Thirty-fourth st. to Fairground ave., \$4,343; Twenty-first st., from Central to Talbott ave., \$10,457; English ave., from Big Four tracks to Keystone ave., \$25,644; Carrollton ave., from Thirty-eighth to Fortieth st., \$13,637; Linwood ave., from New York to Michigan st., \$8,485, and Ray st., from River ave. to Division st., \$11,888.

Muncie, Ind.—Engineer Deardorff has filed estimates for construction of cement curb and gutter in Elm st., from Willard st. to Twelfth st., \$2,940.18; for construction of combined cement curb and gutter on each side of Mulberry st., from C. C. C. & S. L. Railroad to Twelfth st., \$4,085.78; for construction of a paved alley between High and Franklin sts., from Howard st. to Seymour st., \$876.80.

Portland, Ind.—Commissioners of Darke County and Jay County have fixed March 28 as date when contract will be let for improvement of State line highway petitioned for in name of LeRoy Bickel. Bids will be received at Greenville, O.

Mt. Vernon, Ia.—Bids will be received for about one mile of paving. They will be taken on brick, creosoted wood block, asphalt, asphaltic concrete, plain concrete and bituminous coated concrete. Wm. E. Gamble, Town Clerk.

Jeffersonville, Ky.—Bonds for improvement of highways in following townships have been signed by Board of County Commissioners: Applegate road, Jeffersonville, \$12,100; Peet road, Utica, \$8,800; John S. Robertson road, Charlestown, \$7,500.

Louisville, Ky.—Bids for original construction of 14 blocks of streets with vitrified brick pavement have been opened by Board of Public Works. Bidders were G. W. Gosnell & Co., L. R. Figg & Co., and the Henry Bickel Co. Prices ranged from \$1.80 a sq. yd. to \$2.05 a sq. yd. G. W. Gosnell & Co. and L. R. Figg & Co. were lowest bidders. Streets to be improved are Thirty-second st., from Garland to Virginia aves.; Twenty-ninth st., from Garland ave. to Slevin st.; Twenty-eighth st., from Main to Duncan sts.; O st., from Sixth to Seventh sts.; Twenty-eighth st., from Maple st. to Garland ave., and St. Xavier st., from Twenty-first to Twenty-third sts.

Pineville, Ky.—Election for voting on \$500,000 bond issue for road building has been postponed until March 13.

New Orleans, La.—Effort has been made by delegation of prominent men from Algiers vicinity to have city agree to pay part of cost for building shell or other hard surface road from intersection of Merrill and Patterson sts. to Standard Sugar House, near Naval Station.

Rising Sun, Md.—Preparations are being made to resurface 4-mile Rising Sun-Calvert macadamized road.

Salisbury, Md.—People of Wicomico County are alive to value of good roads. There are petitions at this time before County Commissioners for \$50,000 worth of roads.

Andover, Mass.—The macadamizing of Washington ave. is being considered.

Dartmouth, Mass.—Appropriation of \$9,000 has been voted for use of highway surveyor in macadamizing roads.

Lowell, Mass.—Municipal Council has appropriated \$282,000 for Department of Streets and Highways.

Marion, Mass.—Sum of \$500 has been appropriated for new sidewalks in Front st.

New Bedford, Mass.—Many street improvements have been recommended.

New Bedford, Mass.—City Engineer has submitted survey of widening of Hathaway road from Mt. Pleasant st. to Rockdale ave., from 40 to 50 ft., and a hearing has been ordered for March 12.

Salem, Mass.—City is considering widening of Bridge st.

Saginaw, Mich.—Engineer W. R. Roberts has contract for superintending building of boulevard along east side of Saginaw River.

Duluth, Minn.—Three petitions for paving in the West End have been presented to City Council. They call for pavement on Eleventh st., between Twenty-third and Twenty-fifth aves.; Fifth st., between Thirtieth and Twenty-second, and grading of Fifth st. from Twenty-second to Thirtieth aves.

Duluth, Minn.—City Engineer Wilson is now preparing plans for paving of Twenty-ninth ave. West, from Superior st. to Third st.

St. Paul, Minn.—There is plan on foot to continue Ninth st. through to Carroll ave., and ultimately to University ave., making short cut from that thoroughfare to heart of city. Cost of opening Ninth st. to Summit ave. under this plan will be about \$50,000.

Natchez, Miss.—The \$131,000 bond given by P. W. Mulvihill, to whom was awarded contract for improving approximately 47 miles of county roads, has been approved by Board of Supervisors.

Atlantic City, N. J.—Ordinances have been introduced providing for widening of Maine ave., between Madison and Caspian aves., and for widening of Ventnor ave.

Atlantic City, N. J.—Ordinance is being considered for paving of Ventnor ave.

Elizabeth, N. J.—Ordinance has been adopted ordering improvement of Lafayette st., from Reid st. to Smith st.

Newark, N. J.—It has been decided to pave Broad st. with wood block.

Paterson, N. J.—Street improvement work that will be undertaken by city this coming fiscal year, including pavement, macadam, old block street work, grading, curbing and guttering and new sewers, will cost approximately \$201,000. Proposed expenditures of Board of Public Works for street work this year, as agreed to by Board of Finance, is as follows: Semi-permanent pavement, \$100,000; macadam street, \$6,000; old block pavement, \$5,000; grading, curbing and guttering, \$50,000; sewers, \$40,000.

Auburn, N. Y.—Plans and specifications for paving of James st. with asphalt and vitrified brick have been presented by City Engineer E. C. Aldrich.

Brooklyn, N. Y.—Delegation of residents from Bensonhurst and Bath Beach sections have appeared before Public Works Commissioner Lewis H. Pounds and asked that Cropsey ave., from Twenty-second to Fourteenth ave., be repaved.

Fulton, N. Y.—Board of Public Works has decided to recommend paving of West Third st., from south side of Phillips to north side of Maple, with concrete, from north side of Maple st. to north side of Curtis st., and Phillips, from intersection of West First st. to tracks of D. L. & W. Railroad. Schenck st. was recommended to be paved from west end of river bridge to intersection of West First, Worth st., from intersection of Schenck to intersection of West First st., and Rochester, from First to Second sts.

Poughkeepsie, N. Y.—Board of Public Works have determined to petition State Department of Highways to pave Washington st., from Mansion st. to

Parker ave., with brick on proper foundation, and from Parker ave. to city line with bituminous macadam. Also South ave., from south city line to Livingston st., with brick on proper foundation. R. J. Shields, Clerk.

Rochester, N. Y.—Board of Contract and Supply has authorized Clerk Pifer to advertise for bids for general asphalt repairs to streets of city, the estimate being \$50,000.

Rochester, N. Y.—Asphalting of Loomis st. is being discussed; estimated cost \$8,400.

Schenectady, N. Y.—Ordinances have been passed for grading, curbing and paving of various streets.

Schenectady, N. Y.—Ordinance for paving, curbing and grading of Bradley st., from Division st. to city line, has been unanimously adopted.

Schenectady, N. Y.—Petition has been presented from property owners on River st. for paving and curbing of River st. to Front st. with Trinidad Lake asphalt or equal quality. Also from the residents of Jerome ave. for paving with asphalt of Jerome ave., from Helderberg ave. to Poplar st.

Schenectady, N. Y.—Beautification of boulevard is being planned.

Schenectady, N. Y.—Main st., Mt. Pleasant, will be one of streets to be paved this spring.

Whitesboro, N. Y.—Sum of \$400 has been voted for Clark Mills road, \$800 for Rome road, and \$500 on New York Mills highway, making total of \$1,700.

Akron, O.—Ordinance has been passed for improvement of South Main st., from Thornton st. to Crozier st.

Akron, O.—Bids will be received at office of City Auditor until 12 noon, April 4, for purchase of \$4,500 worth of bonds for Jefferson ave. improvement. James McCausland, City Aud.

Niles, O.—Ordinance to proceed with paving on Lincoln st., from Robbins to Clinton st., is being considered.

Youngstown, O.—Bids will be received until 2 p. m. March 24, at office of City Auditor, West Boardman st., for following bonds: \$135 Grave ave. paving bonds, \$6,250 Delason ave. paving bonds, \$10,775 Worthington st. paving bonds, \$1,260 Garland ave. grading bonds, \$785 Madison ave. and Ardale grading bonds and \$1,275 Fulton st. grading bonds. D. J. Jones, City Auditor.

Youngstown, O.—Road Commissioners will receive sealed bids and will sell to the highest responsible bidder on April 7, 1913, at 2 o'clock p. m., at courthouse, to the amount of \$150,000, for purpose of building and improving roads in said district in Mahoning County, O.

Youngstown, O.—Resolution has been adopted authorizing improvement of Market st.

Youngstown, O.—Resolutions have been adopted for improvement of various streets.

Chester, Pa.—Williams Provost, Jr., has been instructed to advertise for bids for paving of various streets.

Erie, Pa.—Ordinance has been passed for paving Twelfth st., from East ave. to eastern city limits, and Reed st., from Twelfth to Thirteenth sts.

Erie, Pa.—Resolutions have been adopted for instructing City Engineer to prepare plans and specifications and to advertise for bids for grading, curbing and paving Ash st., from Sixth to Seventh st.; also to advertise for bids for repaving of Fourth st., between Sasfras and Walnut sts., and providing for joint session of Councils to open bids March 24.

Erie, Pa.—Ordinance has been adopted for paving Twelfth st., from East ave. to eastern city limits, and Reed st., from Twelfth to Thirteenth sts.

Johnstown, Pa.—Ordinance has been passed providing for paving of various streets. J. W. Cramer, City Clerk.

York, Pa.—Widening of Codoens Creek between King and Philadelphia sts. is being planned.

Chattanooga, Tenn.—Bids have been opened for paving of roadway in Mission ridge tunnel. Specifications prepared by Engineer Dodds provided that the bids be submitted for concrete pavement, these bids to be submitted in three separate items. First one was for pavement without any car tracks, second one was for one track, while third was for two tracks. Numerous bids were received and when opened were found to be as follows per lin. ft.: J. H. Holland (no tracks) \$5, (1 track) \$8.66, (2 tracks) \$12.25; McIsaac & Ryan, (no tracks) \$5.70, (1 track) \$9, (2 tracks) \$10.63; D. L. Coffee, (no tracks) \$4.78, (1 track) \$7.32, (2 tracks) \$10.63; Goodrich & Crinkley, (no tracks) \$6.10, (1 track) \$9, (2 tracks) \$11.90; Smallwood & Co.,

(no tracks) \$8.10, (1 track) \$14.31, (2 tracks) \$20; Noll Construction Co., (no tracks) \$12.13, (1 track) \$14.31; Parker Construction Co., (no tracks) \$5.12, (1 track) \$7.21, (2 tracks) \$9.65; J. H. Bragg, (no tracks) \$4.85, (1 track) \$7.56, (2 tracks) \$9.56. D. L. Coffee is lowest bidder on first item, his bid being \$4.78. On second item Parker Construction Co. beat Mr. Coffee by few cents, their bid being \$7.21, as against \$7.32. On third item J. H. Bragg appears to be the lowest bidder, his bid being \$9.56, as against bid of Parker Construction Co., which was \$9.65. Specifications called for concrete pavement 30 ft. in length. Should the contract be let under the first item, it will cost county \$4,454.40. Under second item it will cost county \$6,705.30. Under third item it will cost county \$8,890.80.

Chattanooga, Tenn.—Work of paving Highland Park ave. will begin shortly. Board of Commissioners has instructed Commissioner A. N. Sloan to begin the preliminary work, agreeing to raise funds appropriated for work by old Council.

Greeneville, Tenn.—Under provisions of special bill passed by present Legislature, election has been called in Greene County to be held on March 29 on questions of county issuing \$50,000 additional bonds for purpose of making good roads in Greene County. Already \$300,000 in bonds have been issued for this purpose, and more than 200 miles of roads have been graded, and these, it is hoped to macadamize with additional bond issue.

Sevierville, Tenn.—Sevier County will issue \$180,000 in pike road bonds, and will build several pikes radiating from Sevierville and in all directions. Pike Commissioners in charge of issuance of bonds and of building new highways is composed of H. C. Butler, W. R. Catlett, Jr., and John C. Webb.

Athens, Tex.—In response to numerous signed petitions, Commissioners of Henderson County have ordered road bond election to be held in Precinct No. 1, Athens Precinct, on April 5. They ask for bond issue of \$100,000 for improving roads in this precinct.

Cuero, Tex.—Decisive steps have been taken toward building of county's portion of the Alamo-Victoria-San Jacinto highway, and for building good roads all over county.

Corpus Christi, Tex.—City Attorney Pope has advised that estimates for paving of four streets of the city are ready and that estimates for another eight streets would be ready for next meeting.

Richmond, Tex.—Bond issue has recently been voted for building of 19 more miles of gravel and shell roads in the county.

San Antonio, Tex.—Chairman Franz Groos, of Commerce Street Widening Committee plans to push forward work of widening Commerce st. to uniform width of 65 ft. from South Alamo to Main Plaza. Mr. Groos has not determined whether he will advertise for bids for bonds or whether bids will be offered for sale to bond houses. Tentative plans for widening of street have been made, but no definite plans have been made.

Spur, Tex.—Road district of Dickens County will vote on good roads bond issue of \$100,000 March 8, and indications are that issue will carry with big majority over necessary two-thirds.

Tyler, Tex.—Tyler Commercial Club has decided to wage campaign for better roads. Tyler and vicinity will petition Commissioners' Court in event law passes to create road district around Tyler for radius of 10 or 12 miles. Election for bond issue of \$250,000 for road purposes for the district will then be called.

Yorktown, Tex.—Approximately \$1,000 have been subscribed to gravel portion of Main st.

Bedford City, Va.—Petition has been received asking for macadamizing of College st., from Peaks st. to Elks' Home.

Lexington, Va.—At meeting of Board of Supervisors of Rockbridge, steps were taken to build additional macadam roads on national highway. Application was made to State Highway Commission for State aid, to be used in South River District, appropriation not to exceed \$5,000, when county will appropriate like sum. Road to be built is about 3½ miles, beginning at northern line of Lexington District, near farm of James A. Straub, and extending to Timber Ridge Church. Half mile will also be built through village of Fairfield.

Newport News, Va.—Increase of \$6,600 in estimate for Highways and Sewers Department for coming fiscal year has

been approved by Council Committee on Highways and Sewers, and is recommended to Finance Committee.

Richmond, Va.—Bids have been invited for curbing and guttering south side of Taylor st., between Linden and Beach.

Middlebury, Vt.—Sum of \$1,500 has been voted for permanent highways.

Jefferson, Wis.—One mile of street paving will be laid in this city during coming summer. Brick and concrete will be used.

Superior, Wis.—Paving of Ogden ave., between North Third st. and Belknap st., is being discussed. City Commission is also planning the paving of Grand ave., from North Third st. to Belknap st.

Superior, Wis.—Resolution has been passed by County Board adding to county system of highways 7 miles of road from Minnesota State line to steel plant road, several miles west of South Superior.

Superior, Wis.—Resolution has been passed by City Commission ordering Baxter ave. paved from North Third st. to Twenty-first st. Resolution specifies that bids be called for on at least five different kinds of paving to be laid on concrete base. It is probable that street will be paved with concrete pavement on concrete base.

CONTRACTS AWARDED.

Los Angeles, Cal.—By Board of Public Works for following improvements: Alvarado st., from Santa Cruz to Mirimar, and other streets, awarded to T. E. Shaffer at \$10.65 a lin. ft. for grading on Alvarado st., \$5.50 a lin. ft. for grading on Bellevue ave., \$2.02 a lin. ft. for graveling on Alvarado st., 32 cts. a lin. ft. for cement curb, 50 cts. a sq. ft. for granite block gutter, \$5 a lin. ft. for grading on Kane st., 14 cts. a sq. ft. for concrete gutter, 12 cts. a sq. ft. for sidewalk, \$1.50 a lin. ft. for grading on Kent st., \$3 a lin. ft. for grading on Santa Cruz st., \$300 for regrading on Alvarado st., \$1.45 a lin. ft. for gravel and oil on Kane st.; 95 cts. a lin. ft. for gravel and oil on Kent st., \$1.15 a lin. ft. for gravel and oil on Bellevue st., \$1.15 a lin. ft. for gravel and oil on Santa Cruz st., \$2.840 for storm sewer at Valley st., \$7,995.05 for storm sewer at Temple st., \$6,568 for storm sewer at First st.; aggregate, \$93,132.97. Santa Monica ave., from Wilton to Hobart, awarded to O. A. Nichols at 10.4 cts. a sq. ft. for sidewalk; aggregate, \$1,059.24.

Riverside, Cal.—To Johnson-Shea Co., of Riverside, contract at \$11,497 for constructing 1½ miles of macadam road on Hemet-Pleasant Valley road.

Venice, Cal.—For street improvements as follows: Sidewalks on Indiana st., Pearson & Anderson; grading and paving, curbing, sidewalks, gutters, storm drains and appurtenances on Westminster, Electric, Fourth and Washington aves., Braun, Bryant & Austin, \$30,615.20.

Jeffersonville, Ind.—Two contracts have been awarded by Board of County Commissioners—the Graninger road, continuing Jeffersonville and New Albany boulevard east to this city's limits, to Robert Graninger, for \$2,994.50; Weber road, Silver Creek Township, Samuel L. Gray, \$7,000.

Kentland, Ind.—To Evans & Van Natta, by Newton County Commissioners, Kentland, Ind., for construction of McKee stone road for \$14,845.

Topeka, Kan.—To Ritchie Bros., city, contract, at \$94,249, for 50,000 yds. brick paving, and J. R. Ramsey, Lawrence, Kan., for asphalt paving in sundry streets. C. B. Burge is City Clerk.

Topeka, Kan.—James R. Ramsey has been awarded contract for laying of 38 blocks of asphaltic concrete paving. Mr. Ramsey's bid was \$112,283. Contract includes the grading and curbing of the streets. Contract price was over \$11,000 lower than estimate of A. R. Young, City Engineer. A saving was made by bunching paving contracts instead of letting them a few streets at a time. Following bids were submitted: The Kaw Paving Co., Topeka, \$119,533.22; Warner-Quinlan Co., Syracuse, N. Y., \$121,135.75; Heman Construction Co., St. Louis, Mo., \$122,594; A. Jacks Co., Kansas City, Mo., \$114,064.60; Rushmore & Cowdy, Kansas City, Mo., \$127,962.90; Levy & Levy, Muskogee, Okla., \$120,957.39; The Capital City Vitified Brick & Paving Co., Topeka, \$122,336.75; J. R. Ramsey, Topeka, \$112,283; Western Improvement Co., Racine, Wis., \$125,272.55. The City Engineer's estimate was \$123,489.15.

Lexington, Ky.—Road Committee of Fayette Fiscal Court has awarded contracts for spreading, sprinkling and rolling of about 3,000 rods of crushed rock and screenings to Chandler & Son and Gormley Bros. Contract price was \$10.80 per rod. Roads that are to be resurfaced and number of rock to be spread are as follows: Chandler & Son—Jack's Creek road, 225 rods; Richmond pike, 75 rods; Walnut Hill and East Hickman pike, 300 rods; Tate's Creek pike (Swope to Spears), 375 rods; De-Long pike, 25 rods; Georgetown pike, 75 rods; Spurr pike, 25 rods; Athens and Walnut Hill pikes, 165 rods. Total, 1,925 rods. Gormley Bros.—Nicholasville pike, 150 rods; Downing's and Wilson pikes, 15 rods; Harrodsburg pike, 75 rods; Military pike, 275 rods; Keene pike, 100 rods; Fort Springs and Pinckard pikes, 75 rods; Parker's Mill road, 50 rods; Versailles pike, 75 rods; Frankfort pike (lower end), 265 rods. Total, 1,080 rods.

Many, La.—By State Highway Department, contract to C. S. Jackson & Co., of Crowley, La., at \$24,900, to construct road from Many to Fort Jessup, 11 miles; width about 36 ft.

New Orleans, La.—To C. S. Jackson & Co., of Crowley, La., contract by Highway Department of Board of State Engineers of Louisiana, for construction of 11 miles of Many-Fort Jesup highway, in Sabine Parish, for about \$24,900. W. E. Atkinson is State Highway Engineer.

Bay City, Mich.—To Standard Engineering Co., Toledo, O., contract, at \$20,000, for creosoted block bridge paving on La Fayette st. bridge, Bay City.

Detroit, Mich.—Department of Public Works has entered into contract with Barber Asphalt Paving Co., of Philadelphia, Pa., for 1,000 tons Bermudez and 300 tons Trinidad; with John Baker, Jr., for 900 tons California (Star brand), and 100 tons Texaco, and with U. S. Asphalt Refining Co., for 700 tons Aztec asphalt. Bids are as follows: U. S. Asphalt Ref. Co., Aztec, \$20.80 per ton; Standard Asphalt & Rubber Co., Sarco, \$27.50 per ton; Warner-Quinlan Asphalt Co., Montezuma, \$23.43 per ton; Sunset Monarch Oil Co., California, \$21 per ton; Barnard Bienenfeldt, California, \$21 per ton; Warren Bros. Co., Acme, \$23 per ton; John Baker, Jr., Texaco, \$20.90 per ton; John Baker, Jr., Star-California, \$21.90 per ton (barrels); John Baker, Jr., Star-California, \$19.60 per ton (tank cars); Union Oil Co., California, \$21 per ton; R. F. Conway Co., Cubanel, \$21.60 per ton; Barber Asphalt Paving Co., Trinidad, \$21.30 per ton (rail and lake); Barber Asphalt Paving Co., Trinidad, \$21.05 per ton (canal and lake); Barber Asphalt Paving Co., Trinidad, \$21.65 per ton (all rail); Barber Asphalt Paving Co., Bermudez, \$27.80 per ton (rail and lake); Barber Asphalt Paving Co., Bermudez, \$27.50 per ton (canal and lake); Barber Asphalt Paving Co., Bermudez, \$28.15 per ton (all rail).

Kansas City, Mo.—By Board Public Works, contracts for paving with asphalt as follows: Spruce ave., to the Cleveland Trinidad Paving Co., 1923 Forest ave., and Chelsea ave., to Foxhall P. McCormick, Twenty-first and Penn sts.

Pascagoula, Miss.—By Board of Supervisors, contract for Road Dis. No. 3 for 2,500 tons of slag to be used on roads, to J. J. Tomasich.

Atlantic City, N. J.—Charles H. Cramer has been awarded contract for paving number of small avenues, under ordinance known as that for paving "Independence and other avenues," at approximate sum of \$45,000. Brick, to be furnished by Mack Mfg. Co., of Cumberland, W. Va., was selected as material from several samples furnished.

Brooklyn, N. Y.—For paving as follows: Regulating and paving with asphalt on 6-in. concrete foundation, New Lots ave. (New Lots road), from New Jersey ave. to Dumont ave., to Borough Asphalt Co., 1301 Metropolitan ave., Brooklyn, as follows: 14,460 sq. yds. asphalt pavement, \$1.03; 2,445 cu. yds. concrete, \$5.60; 80 lin. ft. new curb set in concrete, \$1.19; 20 lin. ft. old curb reset in concrete, 70 cts.; 1,250 lin. ft. bluestone heading stones set in concrete, 90 cts.; 3,670 cu. yds. excav. to subgrade, 75 cts.; 180 lin. ft. cement curb (1 year maintenance), 75 cts.; total, \$32,913. Totals of other bids: Barber Asphalt Paving Co., 30 Church st., New York City, \$35,828; Cranford Co., 52 Ninth st., Brooklyn, \$34,889; Uvalde Co., 1 Broadway, New York City, \$35,810. Regulating and repaving with granite pave-

ment on 6-in. concrete foundation, Third ave., from Thirty-eighth st. to Sixtieth st., awarded to Seaboard Construction Co., 639 Gates ave., Brooklyn, as follows: 17,560 sq. yds. granite pavement, with joint filler of coal tar pitch and gravel, \$3.02; 50 sq. yds. old stone pavement relaid, 50 cts.; 2920 cu. yds. concrete, \$4.24; 7,650 lin. ft. new curb set in concrete, \$1.08; 1,800 lin. ft. old curb reset in concrete, 50 cts.; 750 lin. ft. granite heading stones set in concrete, 90 cts.; 4,500 sq. ft. new flag, 24 cts.; 6,700 sq. ft. old flag retimmed and relaid, 2 cts.; 1,000 sq. ft. cement sidewalks, 15 cts.; total, \$76,638. Totals of other bids: John J. Guinan, Gravesend ave. and Neck road, Brooklyn, \$83,972; M. F. Hickey, Sixth st. and Second ave., Brooklyn, \$83,656; Newman & Carey Co., 215 Montague st., Brooklyn, \$84,571; Robertson Construction Co., Third ave. and Seventy-ninth st., Brooklyn, \$83,319. Regulating and repaving with permanent asphalt pavement on 6-in. concrete foundation, Fifth ave., from Eighty-sixth st. to Fourth ave., and Fourth ave., from Fifth ave. to 101st st., awarded to Uvalde Co., 1 Broadway, New York City, as follows: 13,290 sq. yds. asphalt pavement, \$1.09; 2,220 cu. yds. concrete, \$6; 1,910 lin. ft. new curb set in concrete, \$1.19; 1,100 lin. ft. old curbstone reset in concrete, 75 cts.; 680 lin. ft. bluestone heading stones set in concrete, 75 cts.; total, \$31,414. Totals of other bids: Barber Asphalt Paving Co., 30 Church st., New York City, \$34,320; Cranford Co., 52 Ninth st., Brooklyn, \$32,355; Borough Asphalt Co., 1301 Metropolitan ave., Brooklyn, \$31,972. Regulating and paving with granite pavement on 6-in. concrete foundation, First ave., from Fiftieth st. to Fifty-second st., and from Fifty-third st. to Sixtieth st., awarded to the Seaboard Construction Co., 639 Gates ave., Brooklyn, at \$27,951. This work calls for 7,050 sq. yds. granite pavement with joint filler of coal tar pitch and gravel; 1,175 cu. yds. concrete, 350 lin. ft. granite heading stones set in concrete; 2,350 cu. yds. excavation to subgrade.

Schenectady, N. Y.—Contract for construction of 75,000 sq. yds. of stone-filled sheet asphalt wearing surface on concrete foundation has been awarded to John W. Davitt, of Troy, who submitted sample of Montezuma Mexican asphalt, supplied by Warner-Quinlan Co., who bid following prices: 2-in. stone-filled sheet asphalt wearing surface, per sq. yd. at 65 cts.; 8-in., 1-3-6 Portland cement concrete foundation, per sq. yd., 70 cts.; 5-year guarantee bond, per sq. yd., 5 cts. Total for paving proper, \$1.49. Grading, average 8-in. sandy loam, per sq. yd., 16 cts.; granite curb, 6x12-in., set in concrete and backed, 80 cts. Charles A. Mullen, Commissioner of Public Works.

Columbus, O.—By Director of Public Service, contracts as follows, for street improvements: Paving Engler and Nineteenth sts., to S. T. Knight, at \$5,934 and \$4,517 respectively; Kossuth st., to Geigle Barnes & Co., at \$4,571; Maynard ave., to B. F. Patterson, at \$4,458; Poplar ave., to William M. Graham, at \$10,846; Walters st., Medary and Denning aves., to M. F. Haley, at \$9,499, \$18,131 and \$17,785 respectively. Henry Maetzel is City Engineer. Paul B. Kemper is Clerk.

Columbus, O.—By State Highway Commissioner, for grading and paving with brick the Ravenna Youngstown road, Palmyra Township, Portage County, to W. H. Ringwald & Son, Chillicothe, O., at \$30,400. Length is 2.27 miles. Estimated cost of construction was \$30,521.

Hamilton, O.—To C. V. Delaney, to build a culvert at Huston Farm, in Oxford Township, for \$162.44. He will also build road approach at same point for \$110.50.

Niles, O.—By Board of Control, paving contracts as follows: McDermott & Hannon, Mechanic st., \$17,002.84; McDermott & Hannon, Church st., \$6,361.68; McDermott & Hannon, Chestnut st., \$15,587.52; M. P. Connolly & Son, Cedar st., \$18,839.69; M. P. Connolly & Son, Beaver st., \$7,379.89.

Norwalk, O.—By Director of Public Service, contract for paving East Main st., to Modern Construction Co., Fremont, O., at \$13,271; for paving Townsend ave., to the Buckeye Engineering Co., at \$17,355.

St. Paris, O.—By Village Council, to Welsch & Jones, Maryville, O., at \$25,695, for paving Springfield st. C. F. Offenbacher is Village Clerk.

Erie, Pa.—For new pavement on East Ninth st., from State to German st. They will build up old foundation and put 3-in. asphalt surface on 5-in. base with new Bessemer block gutters and artificial curbing where old curb cannot be saved and reset. For old Medina stone taken from street, the contractors have agreed to pay 1c. a cu. yd. in addition to expense of taking up and carting the stone. Contract went to J. & M. Doyle on their bid of \$1.25 a sq. yd. for mixed Trinidad and California asphalt surface, 15c. a ft. for resetting old stone curb, and 35c. for new artificial curbing. They asked 95c. a yd. for cleaning the old cobble stone pavement and laying a 2-in. surface with \$5 a yard for concrete work. Their first proposition was rejected. From Mayer Bros. Construction Co. paving bid was \$2.10 a yd., with curbing at 75c., and 10c. a yd. for taking up and carting the Medina stone to any point the city might designate. Mr. Mayer said they would give \$1 a load for as much of stone as they could use. Pavements for First Ward acted upon were for Cedar and Vine sts., from Seventh to Eighth sts. Ash st. had been included in ordinance, but not advertised. Two bidders competed on jobs, but J. & M. Doyle were successful. Their price on both streets were 90c. a sq. yd. for mixed asphalt, 34c. a yd. for base, 35c. a ft. for artificial curb, and 75c. a ft. for laying pipe. The price quoted by Mayer Bros. was 94c. for asphalt and 45c. for base, and \$1.25 for brick pavement and 40c. for base.

Narragansett Pier, R. I.—To Bristow Bros. & Knowles Corporation, at \$43,055, for constructing two miles of new road and resurfacing four miles of old road.

Galveston, Tex.—To Hanson's Sons, contracts for surfacing Thirteenth st. with mudshell from south side of Ave. C to north side of Ave. E, at cost of \$750.75.

Pittsburgh, Tex.—By Commissioners' Court, contract for 35 miles of good roads, to Wilson & McElrath. Contract covers every important road in county and will insure splendid highways on principal thoroughfares leading into Pittsburgh, the county seat. Contract price was approximately \$400 per mile.

SEWERAGE

Pasadena, Cal.—Resolution has been adopted for construction of sewer on Grand ave. and adjoining streets.

San Francisco, Cal.—Six bids have been received for constructing sewers in Tonquin st., from Baker to Pierce, on exposition grounds, and four bids for paving north half of Lincoln way, between Thirty-sixth and Forty-first aves.

Waterbury, Conn.—Vote has been passed instructing City Engineer to draw up plans for storm water drain between Exchange pl. and Grand st. to take care of surface water at that point.

Muncie, Ind.—Engineer Deardoff has filed estimates on following proposed public improvements: For construction of local sewer in Ninth st., from Gharkey st. to Liberty st., and south in Liberty st. to Tenth st., \$2,607.75; for construction of local sewer in Eighth st., from Monroe st. to Plum st., \$962.50.

South Bend, Ind.—Bonds for Mishawaka ave. trunk sewer and Michigan ave. grade have been rejected and new estimates asked.

Fort Scott, Kan.—Petition will be considered for construction of sewer on East Side.

Skowhegan, Me.—Sewers are asked for on Factory and Hanover sts., one to extend from Jewett st. on North ave. up Athens ave.; one from Bloomfield st. down Main st.; one on Jewett st. from Madison ave. to North ave.; one on West Front st.

Andover, Mass.—Extension of sewer system to Abbott and Marland villages is being discussed.

Dartmouth, Mass.—It has been voted to build a sewer on Rogers st., from Russells Mills road to cove, and \$7,000 has been appropriated.

Marion, Mass.—Sum of \$600 has been appropriated for extension of sewer system.

New Bedford, Mass.—Order has been adopted authorizing City Treasurer to issue \$100,000 City of New Bedford sewer bonds, funds to be used for intercepting sewer work, to be dated March 1, 1913.

New Bedford, Mass.—Petition asking that sewer be laid in Potter st., west of Shawmut ave., has been received and referred to Committee on Roads, Bridges and Sewers, and sent down for concurrence.

New Bedford, Mass.—On recommendation of Committee on Roads, Bridges

and Sewers, Board has ordered sewer laid in Brownell st., from 100 ft. south of Union st. to Arnold st., at an estimated cost of \$1,350.

New Bedford, Mass.—Extension of Fern st. is proposed to solve sewage problem in Aquidneck st. City Engineer Nye stated that it would cost \$3,000 to provide drainage for west end of Aquidneck st. by constructing sewer through Fern st., \$4,000 to carry sewer through Brock ave., and \$6,500 to build sewer in Aquidneck st. to river.

Flint, Mich.—Plans for complete sewer system for Flint, which will cost approximately \$300,000, have been presented to Council after nine months' work by Prof. W. C. Hoad, of Ann Arbor. One hundred maps outline work, maps and plans costing \$5,000. Plans are arranged for sewerage system to take care of 100,000 persons.

Zeeland, Mich.—Election will be held for voting on proposition to establish sewer system.

St. Louis, Mo.—Issuance of \$9,000,000 in bonds to relieve overloaded Mill Creek sewer, treat River des Peres its entire length and rebuild other sewers, is recommended in annual report of Sewer Commissioner Charles A. Moreno. Bond issue, Moreno estimates, should total \$7,000,000. For improvement of downtown sewers, which he hopes may be distributed over period of 10 years, at least \$200,000 a year should come out of municipal revenue. Unless that amount can be set aside, Moreno urges bond issue be raised to \$9,000,000. Estimates he sets forth follow: For relief of inadequate sewers, exclusive of the downtown district, \$350,000; Mill Creek sewer relief, \$1,800,000; additional public sewers, \$500,000; treatment of the River des Peres, \$4,350,000; rebuilding of old downtown sewers, \$3,000,000.

Camden, N. J.—City will construct sewer or drain in Tenth st., from Butler st. to Morton st. A. L. Sayers, Street Commissioner.

Paterson, N. J.—Sewer work to be undertaken this year will amount to \$40,000.

Brooklyn, N. Y.—Board of Estimate has authorized construction of first section of Classon ave. system of relief sewers, which have been made necessary to relieve Fourth ave. subway of sewer pipe running through one of tunnels making it impossible to operate line to its full capacity. Cost of this section is estimated at \$1,125,000. System covers whole central portion of borough and section authorized to-day includes sewers in following streets: Vernon ave., from Nostrand to Tompkins aves.; Skillman st., from Park ave. to Myrtle ave.; Myrtle ave., from Skillman st. to Nostrand ave.; Nostrand ave., from Myrtle ave. to Greene ave.; Hewes st., from Classon ave. to the Wallabout Canal; Classon ave., from Hewes st. to Park ave., and Park ave., from Classon ave. to Skillman st.

Schenectady, N. Y.—Ordinance for laying surface water sewer in Yorkston st., between Lansing and Crane sts., has been introduced by Alderman Burns.

Akron, O.—Council has adopted resolution for constructing sewer on Dean st., from Charles st. to Lods st. Ira A. Priest, Clerk of Council.

Akron, O.—Bids will be received at office of City Auditor until 12 noon April 4 for purchase of \$40,000 worth of bonds for Bowery st. main trunk sewer. James McCausland.

Barberton, O.—Council has passed resolution to purchase 50 acres of land south of town, which will be used for new sewage and garbage disposal plant.

Niles, O.—Ordinance has been passed to issue bonds for construction of sewer in Mechanic st.

Youngstown, O.—Bids will be received until 2 p. m. March 24, at office of City Auditor, West Boardman st., for following bonds: \$1,190 Madison ave. sewer bonds, \$2,040 Loveless ave. sewer bonds and \$4,435 Pyatt st. sewer bonds. D. J. Jones, City Auditor.

Chester, Pa.—Resolution has been adopted that Sewer Committee advertise for bids for construction of sewer on Fourth st., from Flower st. to Central ave., in the next advertisement for sewer bids.

Chester, Pa.—Ordinance has been passed providing for construction of sewer on Twenty-first st., from Madison st. to Providence ave.

Erie, Pa.—Following ordinance has been passed finally: For constructing 9-in. sewers in Reed st., Twenty-eighth to Twenty-ninth st.; in Wayne and

Twenty-eighth st.; in Ash and Twenty-ninth sts., and in Twenty-ninth st., from Wood road west 1,200 ft.

Erie, Pa.—Ordinances have been adopted for constructing 9-in. sewers in Reed st., Twenty-eighth to Twenty-ninth st.; in Wayne and Twenty-eighth sts.; in Ash and Twenty-ninth sts., and in Twenty-ninth st., from Wood road west 1,200 ft.

Mt. Wolf, Pa.—Question of sewer system and reservoir will be considered by Borough Council.

Reading, Pa.—Establishment of sewerage system is being considered.

Sharon, Pa.—City Solicitor Davis has received approval of plans and proposed site for sewage disposal plant for Sharon from State Health Commissioner Samuel G. Dixon. Decree in part follows: The sewage is to be separated from storm water and collected by gravity at pump well along river in southern part of borough. From this collecting point sewage is to be pumped three miles down stream to site opposite Carnegie Steel and Wheatland borough; line of force main to follow river bank through Farrell.

Temple, Tex.—City Council has issued call for bond election to be held April 1 for purpose of submitting to people question of voting on bonds to amount of \$75,000 for acquirement of sewer system.

Newport News, Va.—Committee has authorized engineer to construct storm sewer on Twenty-third st., from Jefferson ave. to Newport News Creek, so as to relieve overflow water on Jefferson ave.

Watertown, Wis.—Lowest bid for construction of storm sewer in North Eighth st. was that of E. L. Bartlett, of Watertown, at \$2,276.

CONTRACTS AWARDED.

Jacksonville, Fla.—By Board of Public Works, to E. W. Parker, of Tampa, contract for constructing storm sewer in western section of city, south of Grand Central ave., at \$37,064.

Tampa, Fla.—By Board of Public Works, contract for construction of storm water sewer, to E. W. Parker, as follows: Cleveland st., drain, \$22,549; Rome ave., drain, \$9,764; Grand Central ave., drain, \$1,831, and Oregon ave., drain, \$2,921. Mr. Parker bid \$9,711 for the Westland ave. drain and \$1,712 for the Gray st. drain, but these contracts were not awarded owing to the total amount exceeding the estimate of \$40,000.

Lewiston, Ida.—Contract for constructing sewers in Sewer Dist. 3 has been awarded to William Enoch, of Lewiston, at \$5,970.

South Bend, Ind.—Hobart & Roach have been awarded contract for construction of proposed Eddy st. trunk sewer at regular meeting of Board of Public Works. Improvement will cost \$2,709.60. Contract for grade, curb and walk on West Colfax ave., from Birdsell to Walnut sts., has been awarded to Joseph Szwarda for \$1,067.45.

Hannibal, Mo.—Lowest bid received on sewer work in District No. 9 was that of Jacob Althouse, St. Louis, Mo., at \$21,028.50. Totals of other bids were as follows: Mathews & Forrester, Kansas City, Mo., \$22,006.75; E. R. Harding & Co., Racine, Wis., \$25,310; F. L. Hall, Hannibal, Mo., \$30,039.55; Missouri Haslam Paving Co., St. Joseph, Mo., \$28,496; and Bell Hudson Co., Poplar Bluff, Mo., \$2,784.25. Work consists of following: 14,265 ft. of 6-in. pipe, 1,950 ft. of 12-in. pipe, 1,425 ft. of 16-in. pipe, 950 ft. of 18-in. pipe, 2,200 ft. of 24-in. pipe, 14,265 ft. of trench for 6-in. pipe 6 to 9 ft., 1,500 ft. of trench for 24-in. pipe 6 to 9 ft., 600 ft. of trench for 18-in. pipe 9 to 12 ft. deep, 600 ft. of trench for 18-in. pipe 12 to 15 ft., 300 ft. of trench for 16-in. pipe 9 to 12 ft. deep, 200 ft. of trench for 16-in. pipe 12 to 15 ft. deep, 500 ft. of trench for 16-in. pipe 15 to 18 ft. deep, 300 ft. of trench for 16-in. pipe 18 to 21 ft. deep, 600 ft. of trench for 12-in. pipe 6 to 9 ft. deep, 300 ft. of trench for 12-in. pipe 9 to 12 ft. deep, 300 ft. of trench for 12-in. pipe 12 to 15 ft. deep, 100 ft. of trench for 12-in. pipe 12 to 18 ft. deep.

Hannibal, Mo.—On Sewer No. 100, lowest bid received was that of Jacob Althouse, St. Louis, Mo., at \$45,072. Other bids were as follows: F. L. Hall, Hannibal, Mo., \$46,905; E. R. Harding & Co., Racine, Wis., \$50,849, and Mathews & Forrester, Kansas City, Mo., at \$47,844. Work consists of following: 9,200 ft. of 30-in. pipe, 3,800 ft. of 6-in. pipe, 1,300 cu. yds. concrete, 3,300 ft. of excav. for 30-in. pipe 6 to 9 ft., 2,100 ft. of excav. for 30-in. pipe 9 to 12 ft., 300 ft. of excav.

for 30-in. pipe 12 to 15 ft. deep, 100 ft. excav. for 30-in. pipe 15 to 18 ft. deep, excav. for 30-in. pipe 18 to 21 ft. deep, 200 ft. excav. for 30-in. pipe over 24 ft. deep, 2,300 ft. excav. for 6-in. pipe 3 to 6 ft. deep, 500 ft. concrete for 6-in. pipe 6 to 9 ft. deep, 700 ft. excav. for 6-in. pipe 9 to 12 ft. deep, 300 ft. of excav. for 6-in. pipe 12 to 15 ft. deep, 16 manholes; 2,600 ft. excav. for 30-in. pipe 3 to 6 ft. deep, and 700 ft. excav. for 30-in. pipe over 24 ft. deep.

Eastchester, N. Y.—To Eastchester Contracting Co., for system of sewers in town of Eastchester, at bid of \$212,083.

Rochester, N. Y.—Contract for building the Gillette st. sewer has been awarded to the Passero & Petrossi Co. for \$1,394.

Wilmingon, N. C.—To construct about 36 miles of sewers, to the American Light & Water Co., Chicago, Ill., at \$151,000.

Burton, O.—To construct about 5,000 lin. ft. of sewers, 8 catch basins, etc., to George Herring & Son, Cleveland, O.

Portland, Ore.—Lowest bid received for construction of East Glisan st. branch of sewer system was that of Giebisch & Joplin, at \$161,457. Other bids were: Consolidated Contract Co., \$164,457; James Kennedy Construction Co., \$162,699; Jacobsen-Bade, \$168,359, and Jeffrey & Bufton, \$162,195. Proposals were referred to Sewer Committee.

Beaver Falls, Pa.—By Borough Council, for construction of system of sanitary sewers with appurtenances, to Pietro Paving & Construction Co., of Morgantown, W. Va., at \$142,577.

Bethlehem, Pa.—By South Bethlehem Council, to E. H. Neumeyer, a \$10,000 contract to build house sewers under streets.

Philadelphia, Pa.—Bids for sewer repair work during the present year have been received in Bureau of Surveys. Emilio Pascuzzi was low bidder at \$23,340. Other bidders were Robert Higgins, \$29,935, and Adolph Joffalla, \$26,076.

South Bethlehem, Pa.—To E. H. Neumeyer, contract for building of house sewers on various streets.

London, Wis.—To Mulholland & Kuehn, of Kankauna, Wis., contract by City Council for construction of sewer on Dorr st., for 75c. to \$1.10.

WATER SUPPLY

Los Angeles, Cal.—People will vote on April 15 on proposition to float bond issue of \$1,500,000 for city aqueduct trunk line, and bond issue of \$2,000,000 for Chatsworth Mission, Fernando and Glendale aqueduct line.

Waterbury, Conn.—Waterbury has asked permission to issue \$800,000 worth of water bonds.

Georgetown, Del.—Question of purchasing water plant is being discussed.

Milton, Fla.—Town Council is considering bid of Florida Banking Association of Jacksonville, for floating \$40,000 worth of corporation bonds for erecting municipal water works and electric light plants.

Boston, Mass.—Plans for Boston's \$1,000,000 high pressure water system for fire fighting have been completed, and it was announced that as soon as City Council passes a \$175,000 loan order first steps in installing this improvement would be taken.

Marion, Mass.—Sum of \$900 has been appropriated for extension of water system in Park st., and \$700 for water system in Mill st.

Virginia, Minn.—City Council has awarded \$450,000 water and light bond to Bolger, Mosser & Williaman, of Chicago.

Atlantic City, N. J.—Ordinance has been introduced providing for \$100,000 bond issue for building of mile of new iron water mains.

Chatham, N. J.—Common Council has approved recommendations of Engineer Charles E. Hewitt and the Board of Water Commissioners concerning changes at water and light plant at cost of \$25,000.

Rahway, N. J.—Plans for improving city water mains have been adopted at meeting of Board of Water Commissioners.

Brooklyn, N. Y.—Board of Estimate has approved report of Corporate Stock Budget Committee recommending appropriation of \$16,000,000 more to be used by Board of Water Supply in construction of Catskill aqueduct system. Original estimate of cost of this system was \$162,000,000, but additional amounts asked for by Board of Water Supply will bring final cost close to \$2,000,000 more.

Port Washington, L. I., N. Y.—Proposition to build municipal water plant is

being seriously considered by prominent residents of this village.

Rochester, N. Y.—Bids will be advertised for water pipe, cast-iron pipe, castings and 50 lbs. of lead for Water Works Department.

Arlington, Ore.—Engineer Louis C. Kelsey, Selling Building, Portland, is preparing plans for new pumping plant and reservoir and electric lighting system.

Dayton, Ore.—Bond issue of \$12,000 has been voted for improvement of local water system.

Linnton, Ore.—Bids will be opened early in April for constructing water works system. Bonds amounting to \$100,000 have been voted and sold. Engineer Louis C. Kelsey, Selling Building, Portland, is preparing plans and specifications for water works which will connect with Bull Run water supply of city of Portland. Cast-iron pipe will be used throughout.

Portland, Ore.—That 24-in. reinforcing Bull Run water mains be laid on Fourth st., from Jefferson to Davis; on Morrison, from Fourth to Chapman, and on Washington, from Fourth to Fourteenth, for \$76,000, is recommendation of Fire Chief Dowell and Chief Engineer Clarke of Water Department to Water Board. In addition, two officials recommend that proposed reinforcing mains from Willamette authorized by voters five years ago as auxiliary water supply for fire protection, be laid soon. Clarke has filed plans for this system which will gridiron entire district from Sixth st. to Willamette, and will cost approximately \$150,000. Bonds have been authorized for this independent system. It is proposed to pump water into these mains with fire boats until such time as permanent pumping stations are installed. Engineer Clarke also recommends that immediate steps be taken to lower the 24 and 28-in. submerged mains across Willamette to meet requirements of United States engineers who are planning to deepen harbor above Hawthorne ave. bridge during present year to depth of 30 ft.

Harrisburg, Pa.—Construction of storage reservoir in Pymatuning Swamp, Crawford County, is being discussed. Cost of entire project including acquisition and preparation of reservoir are: Purchase and removal of buildings, relocation of roads, bridges and railroad and construction of dam and regulating appliances is estimated at approximately \$600,000.

Mt. Wolf, Pa.—Question of reservoir and sewer system, which has been before newly organized Mt. Wolf Fire Company, will be brought before Borough Council at its next meeting.

Reading, Pa.—Reading Water Board will spend \$50,000 for additional water pipes.

Wall, S. D.—Election will shortly be held to vote \$6,000 bonds for construction of water works.

Fort Worth, Tex.—Commissioner Grant has recommended that North Side water system and central system south of river be connected before hot weather begins. The two systems are 1,800 ft. apart, and a 12-in. connection is needed.

Fort Worth, Tex.—City Secretary has been instructed to publish order for election, April 8, to approve or reject water works bonds to amount of \$300,000.

Greenville, Tex.—Rapid growth of Greenville is well shown by advertisement of city authorities for bids on supplying city with over 400,000 ft. of water pipes, several thousand ft. of sewer pipe and 30 additional hydrants.

Bridgewater, Va.—Citizens have voted to issue \$25,000 bonds for water works and sewer system.

Rocky Mount, Va.—Bids are being received for \$50,000 water works, sewerage and electric light bonds. C. S. Greer is Mayor.

CONTRACTS AWARDED.

Wayne, Ark.—Contract to improve water system has been awarded to U. S. Sherman Co., Oklahoma City, Okla., at \$68,300.

Chicago, Ill.—For furnishing 5,000 tons of c.-i. pipe, etc., to the U. S. Pipe & Fdy. Co., at \$24.80 per ton.

Flora, Ill.—By Board of Local Improvements, contract for extension of water mains, requiring 4 and 6-in. cast-iron pipe, to H. H. Hall Construction Co., East St. Louis, Ill., at \$5,195.64.

Bridgeport, Ind.—By Board of Local Improvements, contract to H. H. Hall Construction Co., East St. Louis, Ill., for construction of water works system. Estimated cost \$15,000.

Topeka, Kan.—For construction of addition to city water works pump house, to Cuthbert & Sons for \$4,575. Other bidders were: Anderson, Nordlund & Tu-lein, \$5,721; Barber & Mills, \$6,250; Hoar & Flynn, \$6,365; J. A. Nelson, \$5,112, and Bowers & Kearns, \$6,200.

Hutchinson, Minn.—To E. S. Dimick, Laurel, Neb., contract at \$7,082 for constructing water and sewer mains. C. K. Goodnow is City Clerk.

Minneapolis, Minn.—To East Jersey Pipe Co., 50 Church st., New York City, for furnishing city with approximately 15,000 lin. ft. of 54-in. steel water main for season of 1913, for \$116,705.

Dover, N. J.—By Board of Water Commissioners, contract with Dover, Rockaway & Port Oram Gas Co. for installation of pumping plant to pump water for 10 years from driven wells to high and low service reservoirs. Its offer was to install machinery for \$6,000 and pump all the water required by the Commissioners at 1.65 cts. per 1,000 gals.

Atlantic City, N. J.—Edward L. Bader has been awarded contract for construction of extensions to laterals to Baltic ave. water main at \$183,334.12. He was lowest of half a dozen bidders.

New York City, N. Y.—By Board of Water Supply, for contract 84, which calls for furnishing and delivering 24 48x30x30-in. shaft caps, 1 48x30x36-in. shaft cap, 4 72x48x48-in. shaft caps, 2 72x48x30-in. shaft caps, 5,000 lbs. miscellaneous bronze, 5,000 lbs. miscellaneous iron and steel, to American Manganese Bronze Co., 99 John st., New York City, \$90,568. Other bids as follows: Coldwell-Wilcox Co., Newburgh, \$111,177; Hyde Windlass Co., Bath, Me., \$123,296; Exeter Machine Works, Pittston, Pa., \$126,121; Bethlehem Steel Co., South Bethlehem, Pa., \$134,290; William Cramp & Sons' Ship & Engine Building Co., Beach and Ball sts., Philadelphia, Pa., \$139,346; Paul S. Reeves & Co., 1415 Catherine st., Philadelphia, Pa., \$152,859. Contract 146, which calls for furnishing and delivering valves, hydraulic cylinders, piping and appurtenances for city tunnel of Catskill Aqueduct, has been awarded to Coldwell-Wilcox Co., Newburgh, N. Y., at \$139,642.

Rochester, N. Y.—Contract for valves for Water Works Department has been awarded to Rensselaer Valve Co.

Fond du Lac, Wis.—By City Water Commission, contract for central air compressor and air lift equipment for six of artesian wells, to Ingersoll-Rand Co., of Chicago. Contract price was \$11,107. Bids from Laidlaw, Dunn, Gardner Co., of Cincinnati, and Sullivan Machinery Co., of Chicago, were also considered.

Sutherland, Sask., Can.—By Town of Sutherland, contracts for improvement work for which bids were opened on Feb. 24, as follows: Supply and delivery of water pipes, Munderlok & Co., Ltd., Montreal, Que., \$40,302; for furnishing labor for laying of water pipes, E. T. Sykes, Minneapolis, Minn., for \$25,500.

LIGHTING AND POWER

Jasper, Ala.—Installation of "white way" is being considered.

Los Angeles, Cal.—People will vote on April 15 on proposition to issue bonds in sum of \$6,500,000 for electrical distributing system.

Milton, Fla.—Town Council is considering bid of Florida Banking Association of Jacksonville for floating \$40,000 worth of corporation bonds for erecting electric light and water works plants.

Terre Haute, Ind.—Mayor Louis Gerhardt recommends decorating lighting on Wabash ave.

Leavenworth, Kan.—Installation of "white way" has been assured.

Old Orchard, Me.—Sum of \$500 has been voted for better lighting of Old Orchard st. and East and West Grand aves., during July and August. Plan calls for 1,000 4-c.-p. electric lights, which will be artistically arranged across streets.

Albion, Mich.—Special lighting committee appointed some time ago by Mayor McCarty is ready to report favorably to Common Council on matter of municipally owned electric lighting plant for Albion, to replace present Commonwealth Power Co.'s service. Three sites for power dams are under consideration. Matter of bonding city will be voted on at spring election.

Virginia, Minn.—City Council has awarded the \$450,000 light and water bonds to Bolger, Mosser & Williaman, of Chicago.

Springfield, Mo.—City Council has been asked by leading business men of Springfield to grant them franchise to install \$350,000 electric lighting plant. Plant is to furnish light current at 6 cts. a kilowatt, power at 3 cts., and street arc lamps at \$45 a year. Rate now charged by Springfield Gas & Electric Co. is 12 cts. for light, 6 cts. for power and \$67 for arcs.

Trenton Junction, N. J.—Borough officials are considering plans for installation of electric street lighting system.

Woodbury, N. J.—The Woodbury Council has advertised for bids for lighting city one, three or five years. Present contract with Public Service Corporation will expire in July.

Jamesville, N. Y.—Installation of street lights by Syracuse Lighting Co. is being considered.

Findlay, O.—Council has authorized its Light Committee to instruct City Solicitor to prepare resolution by which bid can be secured for lighting of city streets. It is probable city will arrange to get power from Western Ohio, which has already submitted a favorable bid. Present contract is held by Findlay Light & Power Co.

Miles, O.—Bids have been opened for electric light and water works extension bonds, \$10,000 in all. They were awarded to W. E. Fox & Co., of Cincinnati.

Toledo, O.—Council has passed ordinance providing for 24 additional electric lights in Summit st., between Walnut and Lagrange sts.

Enid, Okla.—The \$25,000 bonds recently voted for oil and gas purposes have been sold by Mayor Peter Bowers.

Arlington, Ore.—Engineer Louis C. Kelsey, Selling Building, Portland, is preparing plans for an electric lighting system, new pumping plant and reservoir for city.

Eastville, Va.—Movement is on foot to install electric plant here for lighting town.

Richmond, Va.—Ordinances providing for general gas franchise, together with method of granting it, have been approved by Town Council of Highland Park. Competitive bids will be advertised for immediately, in order that town can be supplied as soon as possible.

CONTRACTS AWARDED.

Los Angeles, Cal.—By Board of Public Works, contract for installation of ornamental street lighting system on Seventh st., from Alameda to Hoover st., to the Llewellyn Iron Works, Main and Redondo sts., Los Angeles, at \$24,997.

Jacksonville, Fla.—Contract for underground cable for lighting of business section of Jacksonville, largest ever given in city or State, has been awarded to Florida Electrical Co. by Board of Bond Trustees.

DeKalb, Ill.—To Illinois Northern Utilities Co., contract with City of DeKalb for installation of 60 concrete lamp-posts and luminous arc lights on business streets of that city. Lights will cost the city \$54.75 each.

Portland, Me.—Contract between city and the Cumberland County Power & Light Co. for street lighting has been presented by Alderman Jordan. It was unanimously voted to renew contract for five years.

Devils Lake, N. D.—For constructing white way, to Roberts & Perkins, of Minneapolis, Minn., at \$12,995.

FIRE EQUIPMENT

Hartford, Conn.—Finance Board will recommend purchase of new motor pump to replace one in Asylum Hill district, which is nearly past usefulness, and motor tractor will be recommended for one of heavy fire trucks, presumably one at Pearl st. station. Appropriation will also be recommended for installation of quick ringing fire alarm system.

Waterbury, Conn.—Waterbury has asked permission to issue \$75,000 worth of bonds for new fire apparatus.

Delaware City, Del.—City is considering purchase of auto fire engine.

Cockeysville, Md.—County Commissioners will contribute \$3,500 toward purchase of \$5,000 combination automobile fire engine and ladder truck for Cockeysville Fire Company.

Elkton, Md.—Singerly Fire Co. is planning to buy automobile hose wagon.

Haverhill, Mass.—Seagraves combination hose and chemical auto and Seagraves combination chemical and ladder truck will be recommended for purchase for Fire Department as soon as that company has submitted its figures on specifications, which will be put up to them by Alderman Bartlett, head of the

Department of Public Safety and Chief Gordon, of Fire Department.

Lowell, Mass.—Municipal Council has appropriated \$187,000 for fire department.

Reading, Mass.—Purchase of motor fire apparatus is being considered.

Chatham, N. J.—Purchase of new hose for fire department has been approved by Council.

Collingswood, N. J.—Council has authorized proper committee to purchase 1,000 ft. of fire hose, a 30-ft. extension ladder, a 16 and 18-ft. roof ladder, 2 Anderson nozzles and a 12-ft. section hose for use of local fire companies.

Elizabeth, N. J.—Appropriation of \$45,000 will be asked for additional fire apparatus and erection of new fire station.

Long Branch, N. J.—Recommendations have been presented by Commissioner Thomas V. Arrowsmith, head of Public Safety, to Board of Commissioners, to reconstruct fire-alarm department, equip up-to-date police call system, and move toward a "horseless" fire department.

Poughkeepsie, N. Y.—Bids have been opened for furnishing of 2,000 ft. of fire hose to city. Following were the figures: Fabric Fire Hose Co., \$1, \$1.05, \$1.10 per ft.; C. C. C. Hose Co., \$1 per ft.; Cotton Jacket Fire Hose Co., 95 and 80 cts. (represented by Van Benschoten Co., of this city); Paraffine Brand (represented by E. C. Southwick, of this city), 80 cts.; Voorhees Co., 75 cts., 90 cts., \$1 and \$1.10, different qualities; Gutta Percha Rubber Co., 85 cts., 90 cts., 95 cts., \$1.10 and \$1.25; New Jersey Car Rubber Co., 85 cts. and \$1; Eureka Co., 90 cts. and \$1.10; Manhattan Rubber Co., 90 cts.; United & Globe Rubber Co., 90c.; DuBois Bros., this city, 80, 87 and 94 cts.

Riverside, N. J.—Riverside firemen have requested Township Committee to install alarm system in town.

Brooklyn, N. Y.—Villages of Lawrence and Cedarhurst are considering plans for improvement of fire-fighting facilities of both communities. Each village will pay half of expense entailed in getting new and up-to-date apparatus. It is understood that combination automobile hose wagon and chemical engine will be purchased, and that up-to-date fire-alarm system will be installed. In connection with latter, siren that can be heard 15 miles away will be put in Firemen's Hall in village of Lawrence.

Akron, O.—Bids will be received at office of City Auditor until 12 noon, April 4, for purchase of \$65,000 worth of bonds for fire apparatus. James McCausland, City Auditor.

Hamilton, O.—Purchase of auto wagons for Fire Department is being considered.

Lebanon, Pa.—Hook and Ladder Company will purchase new truck to cost about \$10,800.

McKeesport, Pa.—Question of installing two combination automobile fire trucks in Central station is being discussed. Estimated cost \$10,500.

York, Pa.—Additional hose has been recommended.

Newport, R. I.—Appropriation of \$75,013 has been made for fire department.

Sioux Falls, S. D.—Site is being considered for erection of fire station.

Chattanooga, Tenn.—Ordinance providing department of fire and police with appropriation of \$4,400 to motorize chemical apparatus has been passed.

Lynchburg, Va.—Committee on Light, Fire and Electricity have decided to make recommendation for fire department apparatus that has been asked for by Board of Fire Commissioners for number of years. Appropriation that will be asked calls for \$35,405 for purchase of up-to-date fire apparatus for use of local fire department.

Racine, Wis.—Two combination pumping and chemical fire autos will be added to present equipment by city; estimated cost, \$10,000 apiece.

BRIDGES

Waterbury, Conn.—Waterbury has asked permission to issue \$100,000 worth of bonds for proposed Brooklyn bridge.

Ames, Ia.—The Iowa Highway Commission is designing plans and preparing specifications for at least \$150,000 worth of bridges to be erected in this State during coming season.

Waterloo, Ia.—Plans, specifications and estimate of cost of constructing bridge across Cedar River at Mullan ave. have been presented to Council. City Engineer Roby estimated that it would cost \$88,162 to construct 9-pier bridge, with 20-ft. abutments on each end.

Whitinsville, Mass.—Selectmen will recommend appropriations of \$88,350 for voters' consideration at annual town meeting, Man., at \$227,600. M. P. Blair is City Engineer.

Islip, L. I., N. Y.—Town Boards of Islip and Babylon have authorized Superintendent of Highways to advertise for bids for construction of two bridges which, owing to fact that they are on line between two townships, will be built by joint appropriation. First and larger of these bridges is to be built on Hunter ave., while second is to be situated on Wick's road. Estimates submitted must specify solid concrete, with all necessary aprons, etc.

Mayville, N. Y.—Town of Ellery will vote on March 6 upon proposition to raise \$10,000 for purpose of building bridges on Lake road, which is to be improved as part of State highway system coming summer.

Schenectady, N. Y.—Plans have been prepared at City Engineer's office for reconstructing Cotton Factory Hollow bridge.

Akron, O.—Bids will be received at office of City Auditor until 12 noon, April 4, for purchase of \$37,000 worth of bonds for repairing bridges, sewers and streets. James McCausland, City Auditor.

Hamilton, O.—County Commissioners have ordered County Engineer Dillon to prepare plans for construction of new bridge over canal at Heaton st. Plans will be prepared by engineer at once. New structure, when completed, will have a 35-ft. roadway and walks on each side 8 ft. wide.

Rockland, Pa.—Erection of new \$2,000 county bridge across Bleber Creek, in Rockland Township, Berks County, has been approved.

Velasco, Tex.—Bids will shortly be received for construction of four highway lift bridges over Intercoastal Canal between Brazos and Matagorda Bay.

Centralia, Wash.—Plans have been approved for new concrete bridge over Skookumchuck River. Daniel E. Luton prepared the plans.

CONTRACTS AWARDED.

Jeffersonville, Ind.—Contract for bridge over Mill Run Creek has been awarded to Attica Bridge Co., at \$575.

Rushville, Ind.—By Board of Commissioners of Rush County, contract to Burk Construction Co., Newcastle, Ind., at \$11,000, for construction of reinforced concrete bridge, near Rushville.

Ilion, N. Y.—By Town Boards of Ilion and Mohawk, contracts for construction of bridges over Steel Creek, in Ilion and Fuller Creek, in Mohawk, to Breanan, Fischer & Strobel, at about \$14,000.

Hamilton, O.—By County Commissioners, contract for repair of High and Miami st. bridge, to C. V. Delaney for \$1,887. Other bidders were: A. S. Fox, \$1,967, and Capital Construction Co., \$1,975.

Hamilton, O.—To John Conrad, contract for construction of a bridge at Minton Farm for \$2,024, and approaches to same bridge, for \$644.43.

Jacksonville, Ore.—For the construction of steel span bridge across Rogue River, to Coast Bridge Co., of Portland, Ore.

Doylestown, Pa.—By Commissioners of Bucks County, contract for construction of concrete bridge over Durham Creek, to Riegelsville Construction Co., at \$4,436.

Ridgway, Pa.—For construction of reinforced concrete bridge, to Will Dickinson, Ridgway, Pa., at \$7,000. Structure will have a 70-ft. arch with 20-ft. roadway, 5½-ft. walk on each side, and will include with wingwalls about 600 cu. yds. F. W. Ward is Borough Engineer.

Providence, R. I.—By Bridge Commissioners, room 213, State House, Providence, Feb. 24, for rebuilding approaches to Long Island stone bridge, to Holbrook, Cabot & Rollins Co., of Boston, Mass. Engineer is J. R. Worcester & Co., 97 Milk st., Boston, Mass.

Fort Worth, Tex.—By County Commissioners, contract for construction of Twelfth st. bridge, to Austin Bros.' Construction Co., of Dallas, whose bid was \$31,100. Another bid was received from Hannon-Hickley Bros.' Construction Co., of St. Louis, for \$27,500.

Sheboygan, Wis.—To Worden & Allen, Milwaukee, contract, at \$2,948, for construction of iron bridge at Howard's Grove.

Vancouver, B. C.—For construction of George-Harris st. viaduct, to J. McDiarmid & Co., of Winnipeg and Vancouver, at \$455,000. C. A. P. Turner, 424 Vancouver Block, Vancouver, B. C., is Engineer-in-Charge.

MISCELLANEOUS

Los Angeles, Cal.—People will vote on April 15 on proposition to issue bonds in sum of \$2,500,000 for harbor improvements.

Los Angeles, Cal.—People will vote on April 15 on proposition to issue bonds in sum of \$1,000,000 for municipal railroad.

Los Angeles, Cal.—People will vote on April 15 on proposition to issue bonds in sum of \$1,000,000 for new city hall.

Hartford, Conn.—Engineer Saville has recommended that Water Department purchase four new autos, a touring car and three trucks at cost of about \$10,000.

Waterbury, Conn.—Waterbury has asked permission to issue \$500,000 worth of bonds for new municipal buildings, \$800,000 of water bonds, \$200,000 school bonds, \$100,000 for the proposed Brooklyn bridge, and \$75,000 for new fire apparatus.

Atlanta, Ga.—Sum of \$2,000 has been appropriated for purchase of automobile for use of Mayor and chairmen of Sewer and Street Committees.

Cairo, Ill.—First Bank & Trust Co. will purchase at par the \$100,000 bond issue authorized by voters of Cairo at special election Feb. 25.

New Bedford, Mass.—At meeting of Water Board bids for 4-ton motor truck for use in department were opened and 14 proposals were received at prices ranging from \$2,950 to \$4,650. Board has voted to lay bids on table for further consideration after members of board have had opportunity to visit automobile show in Boston later in this month and examine the models exhibited. Bids received were as follows: McIntyre Motor Co., Boston, 1913 McIntyre 4-ton truck, \$2,950; 1913 McIntyre 5-ton truck, \$3,500; Velle Motor Vehicle Co., Boston, 1913 gasoline 4-ton truck, \$3,500; Moulton & Rogers, New Bedford, 1913 Sampson 4-ton truck, \$3,500; Warren A. Tripp, New Bedford, 1913 Schacht 4-ton truck, \$3,500; electric self-starter and lighting, \$250 extra; Packard Motor Car Co., of Boston, Providence branch, 1913 Packard

3-ton truck equipped with tires, \$3,664.75; guaranteed to carry 4 tons; General Motor Truck Co., Boston, 1913 New Model Type 4-ton truck, \$3,827.50; Francis J. Denby, New Bedford, 1913 Speedwell Model Z 4-ton truck, \$3,935; Auto Selling Supply Co., New Bedford, White Model G. T. A. 4-ton truck, \$4,000; Oglesby-Crappo Co., New Bedford, 1913 Kissell Kar 4-ton truck, \$4,048; Murray O'Neil Auto Co., New Bedford, 1913 Peerless 4-ton truck, \$4,250; Peerless Motor Car Co., of New England, 1913 Peerless 4-ton truck, \$4,300; Murray O'Neil Auto Co., New Bedford, 1913 Mack 4-ton truck, \$4,500; Standard Motor Car Co., New Bedford, 1913 Gramme No. 5 Model 4-5-ton truck, \$4,650.

Mishawaka, Ind.—Board of Public Works has ordered advertising for bids and proposals for gathering and disposal of garbage within city.

Terre Haute, Ind.—Mayor Louis Gerhardt recommends establishment of public market.

Lowell, Mass.—It has been voted to purchase a \$600 sprayer.

Willimansett, Mass.—City Engineer Frank P. Cobb practically has completed plans for proposed boulevard along river front from Center to Willimansett, and they will be sent to Boston within few days upon request of Secretary Frederick N. Wales, of the Connecticut Valley Waterways Board.

St. Louis, Mo.—Bids on contract to dispose of all St. Louis garbage collected in municipal wagons until Sept. 1, 1913, will be advertised for by Board of Public Improvements. Contract will be let to lowest bidder as soon as possible after bids are received, but will not demand disposing company take charge of garbage for at least 9 months.

Salem, N. H.—Purchase of 10-ton road roller to cost about \$3,000 will be discussed.

Levington, N. J.—Ordinance has been passed providing for sprinkling surface of numerous streets with oil.

Fulton, N. Y.—Board has instructed clerk to obtain prices of street sprinklers suitable for city streets.

Fargo, N. D.—Clay County will erect new jail.

Marcus Hook, Pa.—Residents of Marcus Hook are to vote on question of borrowing \$59,000 for town improvements.

Reading, Pa.—Reading contemplates construction of \$21,000 incineration plant.

York, Pa.—Bill authorizing loan of probably \$300,000 for permanent civic improvements will be drafted by City Council Committee.

York, Pa.—In select branch ordinance providing for establishment of parkway in city of York and in West Manchester Township, has been passed finally. Ordinance is now ready for signature of Mayor Lafean.

CONTRACTS AWARDED.

San Francisco, Cal.—Contract for constructing municipal railway track on Market st., from Geary to Sutter, has been awarded by Board of Public Works to F. Rolandi, Montgomery st., for \$21,990.

Belair, Md.—By Belair Jail Commission, contract for remodeling of county jail, to Pauley Jail Building Co., of St. Louis, for \$9,900.

New Bedford, Mass.—On recommendation of William F. Williams, Chief Engineer, contract for sluice gates was awarded to Coffin Valve Co., for \$6,260.

New Bedford, Mass.—On recommendation of C. F. Lawton, Superintendent of Streets, contract for supply of shovels for Street Department has been awarded to T. J. Moriarty. He selected shovels for \$6.42 a dozen.

Detroit, Mich.—By Department of Public Works, for furnishing asphaltic oil, to Craig Oil Co., at \$13.18 per ton. Other bids as follows: Sunset-Monarch Oil Co., \$23 per ton, or 75c. per gallon; John Baker, Jr., 75c. per gallon, and Union Oil Co., at \$17.50 per ton.

Ossining, N. Y.—Contract to build new municipal building at Ossining has been awarded to George T. Kelly, of Yonkers, for \$49,000.

Hamilton, O.—To Vernon Hughes, contract for construction of retaining wall at Maud Davis farm, in Morgan Township, for \$1,599.60. Roger Evans' bid was \$1,649.

Hamilton, O.—To Vernon F. Hughes, to construct a channel out at Maud Davis farm, in Morgan Township, for \$309.40.

Lawrenceburg, Tenn.—Contract has been let to Mike Neidergesses, of this city, to build addition to county jail.

Dallas, Tex.—Lowest bid received for erection of new municipal building at Main, Harwood and Commerce sts., was that of Steininger-Taylor Construction Co., St. Louis, Mo., at \$397,000.

TOO LATE FOR CLASSIFICATION

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREETS AND ROADS				
N. J.	Jersey City	2 p.m., Mar. 17	Repairing sidewalks, etc., for the year; imp. sts.	E. B. See, Clk.
N. Y.	Albany	3 p.m., Mar. 17	Imp. sts., brick, granite, curb, etc.	I. Wachsmann, Secy. Board.
O.	Columbus	2 p.m., Mar. 21	Waterbound macadam in Madison Township, 2 miles; waterbound macadam in Jefferson Township, 1.17 miles; bituminous concrete in Darby, 1 mile; waterbound macadam in Erie, 1.24 miles; waterbound macadam in Swan Creek, 1 mile; waterbound macadam in Richmond, 1.87 miles; waterbound macadam in Ulster Township, 1.23 miles; bituminated concrete in Chester, 1.10 miles; brick in Springfield, 1.93 miles; waterbound macadam in Sandusky, 2.21 miles; waterbound macadam in Erie, .9 mile	Jas. R. Marker, St. Hwy. Comr.
Wash.	Seattle	10 a.m., Mar. 21	Imp. and paving streets	C. B. Bagley, Secy. Bd.
Pa.	Philadelphia	Noon, Mar. 27	Asphalt brick granite, repairing asphalt	M. L. Cook, Dir.
O.	Ravenna	Noon, Mar. 31	Brick or asphalt block	W. H. Linton, Dir. P. S.
Ia.	Clarence	8 p.m., Apr. 8	Concrete, 7,500 sq. yds.	S. McNeil, Twn. Clk. Iowa Eng. Co., Clinton.
SEWERAGE				
N. J.	Camden	8 p.m., Mar. 17	Sewers in several streets	J. C. Haines, Chrmn. Comm.
Cal.	Pasadena	9 a.m., Mar. 18	Storm water drainage	H. Dyer, C. Clk.
WATER SUPPLY				
Wash.	Seattle	10 a.m., Mar. 14	C.-i. pipe, gates, hydrants, etc.	C. B. Bagley, Secy. Bd.
Ga.	Atlanta	Noon, Mar. 20	Pumping engine, 10,000,000 gals.	Z. Smith, Mgr.
O.	Terrace Park	Noon, Mar. 14	C.-i. pipe, 2,500 ft. 4-in., valves, hydrants, etc.	W. E. Williamson, Clk.
Neb.	Broken Bow	Mar. 25	Pumping machinery	City Clk.
FIRE EQUIPMENT				
Cal.	Berkley	Mar. 18	Motor second size steam fire engine	W. J. Seaborn, C. Clk.
Conn.	Stamford	Mar. 22	Fire hose, 1,000 ft. 2½-in.	Fire Committee.
S. C.	Charleston	Noon, Mar. 22	Chief's car, 30 H. P.	Board of Fire Masters.
Minn.	Minneapolis	Mar. 25	Fire hose, 10,000 ft.	City Clerk.
Mont.	Helena	8 p.m., Apr. 7	One combination motor hose wagon	J. A. Mattson, City Clk.
MISCELLANEOUS				
N. Y.	Newburgh	5 p.m., Mar. 18	Dock or pier	D. J. Coutant, C. Clk.
Pa.	Pittsburgh	2 p.m., Mar. 20	Cement, 5,000 bbls.	R. J. Cunningham, Co. Compt.
N. J.	Camden	8 p.m., Mar. 17	Tandem steam roller, 8-ton	J. C. Haines, Chrmn. Comm.
N. J.	Longport	8 p.m., Mar. 24	Concrete bulkhead and wing walls	W. S. Gilmore, Boro. Clk.
Ind.	Mishawaka	Mar. 31	Collecting and disposing of garbage	Board of Public Works.
N. Y.	New York	Apr. 2	Shelter building, sewage disposal plant, etc.	Palisades Park Comm.